The Hunterian Oration.

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MR. VICE PRESIDENT, VISITORS, FELLOWS, AND MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND,—We meet to-day to commemorate the 166th anniversary of the birth of John Hunter, that remarkable man whose name in this College is as a living presence, who did so much, and with such great success, last century to raise surgery from the lower grade of an empirical handicraft, which it then too greatly resembled, to the dignity of a branch of science by basing the principles that should guide its practice on the combined foundation of anatomy, physiology, and pathology. His great achievements as a surgeon, his life-history, and his personality have been so frequently and so fully dwelt on here that I may pass these by and at once take up the theme on which I would speak to you to-day. Its subject is John Hunter, the biologist, the sagacious investigator and interpreter of "organic nature." Of John Hunter in this character I can, however, offer you only a very incomplete sketch, since even if the time at my disposal permitted, and had I the necessary ability for such a task—a gift I may not claim—the materials for a complete presentment of him as a biologist do not now exist, for ten large bound volumes of manuscript, written mostly by his assistants at his dictation, and then revised, corrected, and added to by himself, embodying the records of the labours of many years, purchased, together with his museum, by the nation, which made our College their custodian, were about thirty years after John Hunter's death designedly burned by Sir Everard Home, his brother-in-law and executor. He, when interrogated respecting this act, asserted that he had destroyed these MSS. by John Hunter's expressed desire, as being by him considered too imperfect for the public eye. That these ten volumes of MS. were included under the words "Collections and everything belonging thereto," which John Hunter in his last will directed should be offered to the Government "in one lot," is not open to doubt; yet Sir Everard Home, shortly before the transfer of the "collections" from Leicester-square to Lincoln's-inn-fields, and, therefore, after their purchase by the Government, had them removed to his own house. The Board of Curators of the museum of the College appear not to have known that they had existed until after their destruction. This irreparable loss looms the larger when we study John Hunter's anatomical and physiological collections, when we ponder on the fragments of his writings rescued from destruction by the solicitude of William Clift, his devoted assistant and our first conservator, and when we read his Lectures and other papers collected and published by this College and by Palmer, Ottley, and R. Owen. The better my knowledge of the extensive series of anatomical and physiological preparations, nearly all made by John Hunter's own hands—a series which may properly be regarded as the centre around which are clustered our own now very greatly extended and in some respects unsurpassed collection—the more profoundly am I impressed with the vastness of our great master's anatomical and physiological work, which, it should be remembered, was all accomplished within the relatively short space of thirty years, broken in upon by frequent and severe illness, and by the many interruptions incidental to the life of a practising surgeon; and the better my acquaintance with the Hunterian series the more am I impressed with John Hunter's sagacity, for in this series of preparations we have not the bald presentments of disconnected facts, but each preparation unfolds a tale, each conveys a lesson, each is a link in a chain, and not infrequently one clears up something which is obscurely represented or only hinted at by another. The overshadowing greatness of his zootomical works perhaps accounts for the imperfect recognition by so many of us of how much John Hunter also occupied himself in botanical research. In one of several physiological papers, after discussing the agreements and the differences between that which he terms "common or original matter and animate matter"—or, as we now should say, between inorganic and organic substances—and affirming the derivation of the latter from the former, for the reason that "animate is found to return to inanimate matter," he proceeds to analyse the resemblances and differences of the matter of which animals and vegetables are composed. He restricts "to vegetables the power of immediately converting common (i.e., inorganic) matter into their own kind"; and from this he draws the inference that a "vegetable seems an intermediate link between common and animal matter." In his lecture on the Principles of Surgery we find him reviewing the "accord" between the physiological endowments of vegetables and those of animals. He mentions that "a self-moving power has been observed and is universally allowed in vegetables"; and he adds that "this principle seems to be as much a property in vegetables as in animals." He illustrates internal mechanical work done within vegetable tissues by reference to Hale's notable experiments on the rising of the sap in trees, and he contrasts the magnitude of the force employed in this movement with that exerted in the heart's systole. Having defined "irritability" as the power of responding to stimuli by internal and external work, he draws attention to the visible movements of the "whole parts" of plants in response to external excitation as examples of this property. He instances the movements of the leaves of the leguminous plant Hedysarum gyrans as an example of this phenomenon; and he comments on an apparent analogy between these movements and those of respiration in animals suggested in their periodic repetition in both divisions of organic nature. He is, however, careful to avoid the error of attributing to these superficial resemblances an essential correspondence of function. With characteristic caution he says: "This—i.e., the recurring movements of the leaves—is an action apparently similar to breathing in animals, though, perhaps, it does not answer the same purpose." The circling movements of tendrils, as if seeking for a mechanical support, and their twining round this when they come into contact with it, did not escape Hunter's notice. Nor did he overlook the remarkable circumstance which characterises the twisting of the *stems* of certain climbing plants—viz., its constant direction for each plant. He notes the honeysuckle (Lonicera) and the hop (Humulus) as climbers, of both which he says: "Their stems turn to the left, whereas the stem of Clitoria and that of Convolvulus turn to the right." He instances Dionæa muscipula (Venus's fly-trap) and the Mimosa pudica (sensitive plant) as plants endowed with considerable powers of movement. He remarks that "the leaf of Dionæa upon being touched closes up, and, as it were, confines the stimulating cause"—that is, it entraps the insect which, in settling upon its upper surface, has touched the little cluster of extremely irritable hairs, there projecting above the general local of the cuticle. Of the Mimosa pudica he observes that it bends its leaflets in response to a gross mechanical stimulus, and also in response to the subtle excitation of varying quantities of light incident upon them. In connexion with this latter kind of stimulus, that of light, he mentions the goats-beard (Tragopogon) and Calendula pluvialis, two plants in the order Compositæ, and he says that they and many other plants close their blossoms towards night or at the approach of rain. Of this habit our indigenous centaury (Erythræa) and the scarlet pimpernel (Anagallis arvensis) furnish familiar examples. Then he proceeds to tell us that some other plants, as certain species of "convolvulus, open their flowers in the evening and close them at the approach of the sun." In striking contrast to these dusk-loving plants, John Hunter mentions that nearly the entire class Diadelphia (now designated Leguminosæ), which comprises, he says, "chiefly wing-leaved plants," close their "foliola towards night, not expanding them till morning," and he remarks that this phenomenon had been called by Linnæus the "sleep of plants." This reference to the great Swedish botanist is interesting, because it proves John Hunter to have been acquainted with Petrus Bremer's remarkable treatise bearing the Latin title "Somnus Plantarum." It is included in the "Amœnitates Academicæ" of Linnæus, published at Stockholm in 1759. In this instructive memoir Bremer asserts that "plants possess most qualities in common with animals—they feed, they have movement and rest, they have excretions, and they celebrate their nuptials." To Bremer we are indebted for an anecdote of the circumstance which first brought to the great botanist's notice the phenomenon of the folding of the leaves of certain plants at night, before unrecognised. Linnæus, he tells us,

had placed in charge of an assistant a lotus (Ornithopodioides) and had enjoined him to take particular care of it. The lotus blossomed. Throughout the day its conspicuous blossom attracted notice, but in the evening, when the assistant visited the plant, the blossom, to his consternation, was not to be seen. The unhappy man, conceiving that the blossom might have been surreptitiously plucked by an evil-disposed person, watched the lotus more closely than before. Next morning a blossom again appeared; in the evening it had again vanished. Perplexed, and unable to account for the singular occurrence, but convinced that the blossom had not been stolen, the assistant hastened to tell Linnæus what had happened. Linnæus at once went to the lotus, and on closely inspecting it he detected the vanished blossom, still actually present, only hidden from view, mantled by the green leaves wrapt about it. Attention once aroused, the phenomenon was soon found to be common to many other plants. That it should have so long escaped recognition, and it should then owe its discovery to an accident, is but one of many instances we could readily adduce to show how easily do circumstances for which we are not looking pass unnoticed, even though daily occurring under our very eyes. John Hunter made the Mimosa pudica the subject of a study into which he threw himself with characteristic energy. He writes that "in order to have the greatest part of the day before me I began my experiments at eight in the morning while the leaves were in full expansion, and I continued them till four in the afternoon, as longer would not have been just, for they begin to collapse of themselves between five and six o'clock." With his peculiar aptitude for planning an experiment he contrived a small screen upon which he could trace and measure the arc through which a selected leaflet moved in response to a certain stimulus. In this way he found that "the leaflets are less affected as they become accustomed to the stimulus"; "that they require a stronger and quicker stimulus to produce motion after being some time accustomed to it"; and "that they erect themselves less after a repetition of such actions." Here the analogy to the corresponding occurrences in connexion with excitation of animal tissues is very obvious. Searching for the mechanism concerned in the movement of the Mimosa leaflets, John Hunter discovered that "the motion is principally confined to one part, and this differing from the others in external appearance, which difference is its increased thickness and uniformity of surface." Thus he locates the motor mechanism in the swelling at the base of the petiole, and in the homologous parts of the stalks of the leaflets. Next he tells us that he slit longitudinally the swelling on the "footstalk," and also that part of "the stem on which it stands," and he is about to record what he saw in these; but here, as Ottley observes, there occurs a blank in the manuscript which leaves us ignorant of what he actually discerned in them. I do not gather from the context that John Hunter employed the compound microscope in this investigation. The contrary appears more probable, for the use of the microscope was then only dawning, and vegetable histology had made relatively little advance since Malpighi began to cultivate it in the latter half of the preceding century. We, at our standpoint, can hardly imagine the possibility of Malpighi holding concurrently the chair of Botany and that of Zootomy in his University (Bologna); yet in both these chairs he made discoveries which gained him enduring fame. We *medici* are wont to think of Malpighi as an anatomist only, whose honoured name has come down to us chiefly in association with certain minute bodies in the kidney, and in the spleen and a certain layer in the integument; but botanists revere Malpighi as the founder of vegetable histology. For John Hunter it may fairly be claimed that he pushed his investigation into the motor mechanism of the mimosa leaflets as far as was then practicable with the means at his command. Later investigators have demonstrated that when in a young, vigorous, succulent Mimosa a cut is made with a sharp knife in the petiolar swelling, dividing its parenchyma down to the central strand of vascular tissue, a drop of water oozes from the wound, upon which follows the well-known movement of the leaf. In the absence of this effusion of water no movement of the leaf occurs. Julius Sachs, who in recent years has done so much to advance the study of vegetable physiology, has further demonstrated that the visible leaf-movement is caused by the afflux of water in the petiolar parenchyma, distending this tissue and so causing it to become elongated more than the less extensile axile band of vessels. By such distensions of the mass of parenchyma situated above the axile vascular band the upper part of the petiolar swelling is lengthened disproportionately to the lower part, and the leaf necessarily bends down; whereas, when the lower mass of the parenchyma is turgid with water the opposite occurs and the leaf is erected. By the device of removing first the upper mass of parenchyma and then the lower mass of it, Sachs was able to demonstrate that only the lower mass, below the axile vessels, is endowed with this irritability. It is now known that the movements of the mimosa leaflets are attended with the production of feeble electric currents. Such have been also demonstrated by Professor Burdon Sanderson to attend the movement of the leaf of Dionæa muscipula. Dr. Kunkel, working in Sach's laboratory, has since demonstrated that weak electric currents accompany the movement of water in the vegetable tissues, however this movement is originated, and thus the generation of such electric currents is proved to be not peculiar to leaf-movements induced by external stimuli. Whilst experimenting on the Mimosa, John Hunter relates that he observed that when he touched the leaflets the visible effect of the local stimulus spread to the neighbouring leaflets, which he saw successively bend down in pairs until all the leaflets of the compound leaf were folded. He also noticed that this progressive effect of the stimulus spread from the point of its application more readily in the direction towards the stem than in the opposite direction towards the distal end of the leaf. Professor J. Sachs, and with him some others, appear disposed to regard the petiolar, axile, vascular bundle as the path along which the molecular disturbance initiated by the stimulus travels; but, whether this or the parenchyma is the path, it seems probable that a molecular disturbance in the living, active protoplasm is the efficient cause of the influx of water that produces the leaf movement. The protoplasm of adjoining vegetable cells is now known to be continuous through minute openings in the cell-wall, so that we are warranted in regarding the protoplasm in living vegetable tissues as a "continuum," and thus the propagation of a molecular disturbance to considerable distances from the point of application of a mechanical stimulus originating it becomes readily intelligible. John Hunter's experiments on the Mimosa were not restricted to the effects of mechanical stimuli. He also experimented on this plant with heat, with chemical solutions, and with ether. He tried also the effect of a tight ligature placed around the stem or branch, and he found that when the parts below the ligature were cut very slight or no movements of the leaf occurred. Continuing his discussion of the resemblances between animals and vegetables, John Hunter remarks that "vegetables are supposed, with great reason, to have an action analogous to breathing, for the same kind of air which kills animals which do breathe certainly kills vegetables also." He touches this subject so briefly that he leaves us uncertain whether he had himself experimentally investigated the influences of gases on plant life or had merely adopted the conclusions of others. This latter appears to me more probable when we remember the standpoint of the chemistry of the gases in his day. Carbonic acid gas was discovered by Black in 1767, nitrogen by Priestley in 1772, oxygen also by Priestley in 1774, and hydrogen by Cavendish in 1776, the year of John Hunter's Croonian Lecture, from which I have just quoted. We know that John Hunter and Cavendish were personally acquainted, for Hunter tells us that Cavendish examined for him "air" contained in certain bladders present on the intestines of a hog sent him by Jenner. There is, then, no improbability in the idea that Hunter may have derived from Cavendish his knowledge of the influences of gases on vegetable life. However this may have been, botanists have long recognised as a general principle the necessity of oxygen for vegetable life; that vegetables derive free oxygen from the surrounding atmosphere; and that they are also able to seize upon oxygen when presented to them in weak chemical combination. Of this latter action the reduction of oxyhæmoglobin to hæmoglobin in the circulating blood by the bacillus of anthrax in animals dying of cattle plague has been regarded as a significant example. In the absence of oxygen plants are asphyxiated; vegetable protoplasm loses its irritability, though less quickly than does animal protoplasm, because the processes of vegetable life are less actively carried on than are those of animal life. When a plant is deprived of oxygen, as when it is placed in an atmosphere from which this gas is absent, during a short period the

want of the external supply of oxygen is in some measure compensated by the atmospheric oxygen previously enclosed in the air-spaces of the vegetable tissues; perhaps also some oxygen is derived by the plant from the decomposition of weak combinations of oxygen normally present in certain chemical substances contained in the tissues, but these sources of oxygen are soon exhausted. To this general law of the necessity of oxygen for the maintenance of vegetable life certain low forms seem to offer notable exceptions. Thus the yeast plant (Saccharomyces cerevisiæ) can live and even increase in an atmosphere devoid of oxygen. Its highest life-phase, however, requires the presence of oxygen, for it does not produce spores unless it has access to the atmosphere. Then, also, there are certain schizomycetes to which free oxygen appears positively deleterious—they die in its presence. The explanation of this remarkable phenomenon still awaits solution. The final products of the oxygen taken into the tissues of the plant are carbon dioxide and water. The former of these is exhaled from every part of the external surface of the plant. This, Von Tighem says, is the most constant phenomenon of plant life, and thus in the matter of gas-exchanges we find confirmed the impression mentioned by John Hunter as current in his day—viz., that a very close correspondence exists between vegetable and animal respiration. That plants, like animals, have "the power within themselves of producing or generating heat" was not unnoticed by John Hunter. He experimented also with freezing mixtures in order to ascertain the effects of very low temperatures on succulent and on woody plants, and he found greater resistance to cold in the latter. He also carried out a series of observations, prolonged over a year, on the internal temperature of trees relatively to the temperature of the external atmosphere. He mentions that he read his thermometers at six o'clock in the morning, and again at the same hour in the evening; and he mentions that he was obliged to discontinue the experiments because the sap froze in the bore-holes made in the trunks for the reception of his thermometers. He relates that he was careful to allow a sufficient interval to elapse between boring the holes and the insertion of the thermometer, in order that the heat produced by the friction of the gimlet might be dissipated; and he tells us that he enclosed the externally projecting part of the thermometer in a box and packed it in wool as a safeguard against "all immediate external influences, either of heat or cold." We find, too, that John Hunter made a series of temperature experiments on vegetable seeds similar to others he had made on eggs, and he mentions his intention to record these. No record of them has, however, been found, and perhaps it may have been amongst the manuscripts burned by Sir Everard Home. John Hunter has left us a brief account of experiments in connexion with the movement of the sap. We possess also short statements of his views concerning the influence of light on the production of the "green colour" of vegetables; the changes undergone by the leaf when dying; the natural decay of the vegetable tissues; the morphology of the bud; and "germination and generation in vegetables." I cannot now enlarge upon his work in connexion with these several subjects, nor is it necessary for me to do so, since enough has been said to justify me in claiming for John Hunter that he was a very close observer and an acute reasoner upon many of the phenomena comprised under vegetable physiology.

Leaving botany, John Hunter's title to a place in the foremost rank of original investigators in zoology, the other primary division of biology, is so universally acknowledged that more than a passing reference to his researches in the animal kingdom may seem unnecessary—particularly within these walls; yet on this occasion I may not dismiss them with a bare allusion. His memoirs on "The General Principles of the Blood," on "The Vascular System," on "Digestion, Absorption, and Nutrition," and on "The Growth of Bones," even at the standpoint we have reached, require attentive study. They show how far he was in advance of his contemporaries. John Hunter's devotion to physiology, which had its root in his conviction of the necessity of this "discipline" for the intelligent practice of surgery, was made a reproach by empirical surgical contemporaries, who called him a theorist and not a practical surgeon; indeed, his tardy recognition as a leading surgeon in the metropolis was probably partly owing to this wrong impression of him. One of his most important memoirs is certainly that on "The General Principles of the Blood." From it we learn how much patient investigation, how much concentrated thought, he gave to the striking phenomenon of its coagulation. "This," he says, "is not a property of the blood as a whole, but only of one of its component parts—the coagulable lymph." Then, with nice discernment, he makes the comment that "this would better be termed coagulating lymph, since blood serum also contains a coagulable substance, which, however, needs the addition of a chemical agent for its change from a liquid to a solid state." Coagulable lymph—now termed fibrin—John Hunter regarded as the most important constituent of the blood, chiefly because he found it universally present in it. He sought to ascertain the influences of temperature on the coagulation of fibrin, and he proved that this is retarded by cold and hastened by heat. The effect of motion and of rest on coagulation also occupied his attention, with the result that he was led to regard rest as an important direct factor of coagulation, but not its immediate cause. The final outcome of his experiments and observations on the blood was the view of its coagulation, which I reproduce in his own words: "That the fluid state of the blood is connected with the living vessels which are its natural situation, and with motion; and that where there is a full power of life the vessels are capable of keeping the blood in a fluid state." These views appear to harmonise closely with those of the present day. The red corpuscles of the blood, with whose appearances John Hunter was familiar, he considered a less important constituent than the "coagulable lymph," for the reason that they are not universally present, not occurring in the colourless blood of the lower animals. The white corpuscles seem to have been unknown to him, a circumstance not surprising when we recollect how imperfect the compound microscope then was, and the entire absence of our numerous resources, of which I need cite only the use of differential staining agents by which so many delicate details of minute structure have been disclosed. How narrowly John Hunter scrutinised every unusual circumstance that came before him is shown by his remarks on "Liphæmia." "The serum of the blood," he says, "is often wheyish, and then upon settling it often throws up a whitish scum like cream." "This was most probably first observed in human blood, but it is not peculiar to it." He had noticed it "more frequently in the blood of breeding women, but he had seen it in others and sometimes in men." Examined with the microscope he found this scum to be composed of "globular particles" which are not soluble in water and which rise to the top. This pathological condition of blood serum has in recent years attracted much attention; reference to it was made by more than one speaker in the "Discussion on the Morbid Anatomy of Diabetes," an account of which was published in the Transactions of the Pathological Society of London.[1] Numerous and varied experiments were made by John Hunter to determine the cause of the different colour of venous and of arterial blood. He noticed the influence of respiration on the colour, and to the objection advanced by some persons, "that in the lungs the blood cannot come into contact with the air" he opposed the familiar fact that the bright red colour assumed by the outer surface of a blood-clot when exposed to the air "extends some depth into the clot," whence "it is evident that air can and does pervade animal matter." Passing to the "vascular system," John Hunter notices the predominance of a muscular element in the coats of the smaller bloodvessels; and then he comments on the respective influence of the elastic and of the muscular tissue on the calibre of the vessel. He notices the branching and the anastomosis of arteries, and he discusses the effect of these arrangements on the velocity of the blood current. Then he investigates the pumping force of the heart in relation to the resistance offered by the arteries, the relative capacities of the venous and arterial systems, the retardation of the blood-current in the veins, and the form, structure, and distribution of the valves in the last-named vessels.

John Hunter's observations on "Digestion and Nutrition," though much less extensive, are scarcely less instructive. I shall cite only one memoir—viz., that on "The Digestion of the Stomach (by its own Juices) after Death," occasioning appearances which had previously been regarded as pathological, and respecting the true nature of which much acute difference of opinion continued long subsequently to exist, notwithstanding the thoroughness of Hunter's exposition. In a communication to the Royal Society made at the instigation of its President, Sir John Pringle,[2] John

[1] Vol. xxxviii., 1883. [2] Read on June 18th, 1772.

Hunter insists on the prime importance of a correct knowledge of the appearances produced in the tissues of the body by those changes which they naturally undergo in those dying suddenly, as by fatal violence inflicted on persons in perfect health. He significantly remarks that in the absence of this knowledge appearances, collectively products of putrefaction, may readily be mistaken for others the results of disease, pathological in their nature and occurring during life, and thus confusion and misapprehension will arise. Then he proceeds to explain that "there is a case of mixed nature which cannot be reckoned a process of the living body nor of the dead; it participates of both, inasmuch as its cause arises from the living, yet it cannot take effect till after death." He adduces the fact that "animals or parts of animals possessed of the living principle, when taken into the stomach, are not affected by the powers of that viscus so long as the living principle remains. Thence it is that we find animals of various kinds living in the stomach or hatched or bred there; but the moment that any of these lose the living principle they become subject to the digestive powers of the stomach." His argument is that "if the living principle was not capable of preserving animal substances from undergoing that process [digestion] the stomach itself would be digested," which it is not. The "appearance" which John Hunter ascribed to post-mortem digestion is a dissolution of the stomach at its great extremity, in consequence of which there is frequently a considerable aperture made in that viscus. "The edges of this opening appear to be half dissolved, very much like that kind of dissolution which fleshy parts undergo when half digested in a living stomach, or when dissolved by a caustic alkali—namely, pulpy, tender, and ragged." At a loss to account for these appearances, John Hunter had supposed them to have been produced during life, and to have been the cause of death (then the current view); but the absence of associated symptoms and their frequency in persons who in health had died violent deaths occasioned him perplexity and made him "suspect that the true cause was not even imagined." He tells us that the first time he had observed this "appearance" was under circumstances that precluded its causation by disease—the man had just before his death taken a hearty supper of cold meat, cheese, bread and ale. On opening his body a large hole was found in the stomach, through which part of the ingesta had escaped into the general cavity of the abdomen. Doubtful as to what this might mean, he began "many experiments on digestion on different animals, all of which were killed at different times after being fed with different kinds of food; some were not opened immediately after death, and in some of them [he adds] I found the appearance above described in the stomach." The memoir is worthy of study, if only as an illustration of John Hunter's method of work; whenever puzzled by anything of which the explanation did not immediately present itself he turned to experimentation for its solution.

These very incomplete references to some of his physiological researches show that, as an original investigator in this branch of biology, John Hunter was in line with the foremost workers of his day. How great an anatomist he was is evidenced by his published papers, by the value in which his lectures delivered in the Windmill-street rooms were held by those who made the effort to understand them and appreciate them, and is told even more eloquently by his "preparations" in our Museum. In anatomy, as I have already hinted, he was not a mere accumulator of facts, not a mere describer of figure, colour, and the relative positions of the organs and members of the animal body; but he ever sought for the explanation of these. He endeavoured to import into the art of anatomy the character of a science. He was ever seeking the how, the why, and the wherefore of the facts disclosed to him by his scalpel, ever reasoning inductively from particular instances and endeavouring to deduce general laws.

But John Hunter was not only a distinguished physiologist, zootomist, and anthropotomist; he also assiduously prosecuted researches in embryology, previously little cultivated, and he gathered a rich harvest. How keenly, how penetratingly, he observed and how sagaciously he interpreted what he saw is apparent in his article on the "Development of the Chick." In order to ensure a supply of eggs for this research he kept large numbers of fowls and also a flock of geese during several years. John Hunter's labours passed beyond the limits of ontogeny, the development of the individual, to phylogeny, the evolution of the "stem." "We may observe," he writes, "that in natural things nothing stands alone; that everything in nature has a relation to or connexion with some other natural production or productions; and that each is composed of parts common to most others, but differently arranged. Therefore, in every natural production there is an appearance of an affinity in some parts of its composition (with those of some other natural productions), and where there are the greatest number of these affinities (or corresponding parts) the correspondence or affinity between those of one production with those of another the nearer are those (natural productions) allied." In another passage, after premising that "definitions are the most damnable things," he defines "species" as "things having the same relationship in their most essential properties, however much they differ in others." So "animals breeding in the full extent of that process constitute the species, although this may differ in some of their parts or other circumstances, but which differences are less essential, only constituting a variety." He comments on the greater tendency of domestic species to variation than obtains in wild animals, which he illustrates by referring to the many diverse breeds of dogs and the few distinct races of wolves. This difference he attributes to the existence of domestic animals under other than their natural circumstances; in short, he recognises the plastic influences of environment. He perceives "in a great many species a considerable variety in the same, and from variety in the same species it becomes [he adds] a doubt whether they were all original or none of them, or, if any be original, which that one is." He alludes to the variability of species in more than one passage, and then makes the important comment that some variations are transmissible to offspring. He tells us that "it may certainly be laid down as one of the laws of nature for species to deviate from their type under certain circumstances"; and he significantly adds that it is neither necessary nor does it follow that all deviations from the original must be a falling off—it appears just the contrary; therefore we may suppose that nature is improving her works, or at least has established the principles of improvement in the body as well as in the mind." In these passages, laboured and somewhat deficient in perfect clearness of expression as they are, we find John Hunter enunciating the principles of the "inherent variability of species," of the "modifying influences of environment," of the transmissibility of variations from parent to offspring," and of evolution from lower to higher forms—in short, in those of his papers which escaped destruction there is to be found abundant evidence that his mind was often and deeply engaged in the consideration of the pregnant question comprised in the word "evolution" around which so much and such fierce controversy has been waged in our own day.

The significance of past forms of life did not escape John Hunter; he studied their fossil remains, of which he collected a considerable number. In a previous communication to the Royal Society on a series of fossil bones from caves at Gailesereuth, presented to that body by his Serene Highness the Markgrave of Anspach, we find John Hunter investigating the circumstances of their fossilisation, comparing the form of these bones with those of extant animals, reviewing the geographical distribution of animals in past time, and drawing lessons from the *gisements* of fossils as to the condition of the earth's surface in past ages. From these and similar considerations John Hunter inferred a duration of our earth prolonged through "many thousand centuries." This chronology was so greatly at variance with that then universally received that a second memoir communicated by him to the Royal Society, in which he expressed this opinion, caused such misgiving in the council of that body that the suggestion was conveyed to John Hunter through a friend that he should substitute "years" for "centuries." With characteristic adherence to his convictions he would not modify his original statement and withdrew the paper.

John Hunter's researches were not limited by the walls of the dissecting-room, museum, and study; outside these he was a keenly observant student of living nature. To the great value of these two lines of work he was fully alive. In fragmentary notes on "Natural History" (edited by R. Owen) he remarks that "writers on the natural history of animals have been of two kinds, one [concerned] only in what they could observe externally, such as form and mode of life, the second [studying] only the internal parts and the structure of the whole animal, which was performed by the anatomist. As [the subject of] the first has an

immediate connexion with [that of] the second, the describers of form conjectured what the structure ought to be by consulting the works of the anatomist; and the anatomist conjectured what the living history is or ought to be from the natural history of others, filling up what he conceived to be just and fancy supplying the rest. But such union of knowledge does not properly match. It is one building built at different times—an addition to an original plan. It is no wonder, therefore, that the whole is imperfect." Can we pronounce all later anatomists and writers on natural history to be free from this reproach? John Hunter's remarkable memoir on the Life-history of Bees testifies to his excellence as a naturalist. For the convenience of close continuous observation of his bees without molesting them he had hives made with glass windows, which allowed him at all times to watch their occupants. He inquires into the causes of the deaths of certain bees in winter; he mentions that "there was plenty of honey in their hive; that on closely examining the dead bees he found they all died with their proboscides extended, their stomachs were full of honey, and their intestines, especially the last part, also full of excrement." No circumstance, however minute, eluded his notice. He comments on the heat of bees, and remarks that without warmth they become dull, inactive, and torpid. He tells us that "on July 18th, at ten in the evening, wind northerly, thermometer at 54° in the open air, I introduced it into the top of a hive full of bees, and in less than five minutes it rose to 82°. I let it stand all night. At five in the morning it was down to 79°, at nine in the same morning it had risen to 83°, and at one o'clock to 84°, and at nine in the evening it was down to 78°. Dec. 30th. Air at 35°, bees at 73°." John Hunter made the discovery that the wax is not gathered by the bees from flowers, as is "farina" (pollen), but it "is formed by the bees themselves." He says: "It may be called an external secretion of oil. ..... It is formed between each scale on the under surface of the belly." He detaches the minute flake, warms it on the point of a needle in the flame of a candle, sees it melt and run into a bead, and then burn in the manner of wax—in short, it is wax. Then he describes the building of the comb and of the royal cell; the deposition of eggs by the queen, their attachment to the bottom of the cells, and their occasional transference from the cells in which they were first placed to other cells; the storing of bee-bread for feeding the grubs; the development of the grub, its pupal phase, and final escape from the cell as the imago. He notes the different life forms present in the community—the queen, the males, and "the working bee, which cannot be called either sex." Lastly, he describes the anatomy of the bee and comments on its special senses. With equal thoroughness he investigated the life-history and habits of the wasps and the hornets. We also find him occupied in a study of the economy and anatomy of the humble-bee (Bombus terrestris), on which subject he has left a long note. With untiring industry he examined all the occupants of one nest, and found them to comprise 157 females and twenty-five males, and he noted that the former had longer proboscides than the latter. The humble-bee does not, he tells us, colonise, like the honey bee; it does not swarm like these, but the family is begun by a single female, assisted later by her offspring. None but young queens live through the winter, on the approach of which they leave their nests and seek winter quarters in holes in dry banks and similar places, from which they emerge in the following spring. About May the humble bees construct their hives, which are usually beneath ground. He describes in considerable detail their structure, the deposition of the egg by the queen, the grubs which result from these, and their life-history, ending in the image stage. The black humble-bee (Anthophora retusa) and the "leaf-celled bee" (Megachile centuncularis) were also objects of his study. He notices the habit of the latter of cutting pieces of the leaves of roses, strawberries, and figwood, and he admires the dexterity they evince in carrying these into their holes, and the skill and neatness shown in adapting them to the construction of their cells. His attention was not limited to Hymenoptera, for we find him busy with beetles. Of the dung-beetle (Geotrupes stercorarius) he records that in June he found the grubs nearly ready to assume the pupal phase, and that the perfect beetle emerged at the end of July or in August. The nests enclosing the grubs are holes from twelve to eighteen inches below the surface of the ground, usually near cow dung. These and also other holes pierced for the purpose they use for winter quarters. Most of them die, but a few survive till the following spring. Of the common cockchafer (Melolontha vulgaris) and the rose-beetle (Cetonia aurata) he has also left short notes. In Orthoptera he describes at some length the grasshopper (Phasgoneuron viridissimum), with special notice of the external appearance and the anatomy of its eye. He detects the predatory habit of the dragon-fly (Æshna grandis), concerning which he makes the following thoroughly characteristic note: "Aug. 18th, 1778, at eight o'clock in the evening, I saw the dragon-fly flying about, making short turns, which were performed very quick. I also observed gnats flying; and what took my attention most was his making up to a gnat, and the gnat was seen no more; therefore I conjectured he was feeding upon them. I caught him and opened him next morning, and could observe in the stomach the scales of some insects." What a picture this little anecdote gives of the acuteness of John Hunter as a field naturalist.

As a zootomist and morphologist John Hunter could not be satisfied with the highly artificial zoological classifications current in his day. He remarks on the want of an adequate knowledge of these preliminary and indispensable studies which led even the great classifier Linnæus into some very singular arrangements in the earlier editions of his "Systema Naturæ," of which he notices one—viz., the placing together in one order of mammalia, man, the elephant, and the bat, because in each the mammæ are pectorally situated. Such classifying as this, he caustically observes, may be pertinent as regards nipples, but not as regards animals. He did not stop at showing the defects of the current artificial systems of classification of animals, but he suggested as bases for a natural classification the arrangements of the vascular, the respiratory, and the nervous systems; and he tentatively drew out the scheme of a natural classification founded on a combination of what he termed essential and circumstantial characters. Thus, of the class Mammalia he gives as essential characters a four-chambered heart, lungs confined in a proper cavity, the enlargement of which is the cause of respiration, lungs divided into small cells, respiration quick, viviparous, &c.; whilst circumstantial characters are found in the structure of the auditory organ. This illustration will suffice to prove how sound and how advanced were John Hunter's views as a systematic zoologist.

If in this sketch of John Hunter, imperfect, incomplete as I know it to be, I have succeeded in some small degree in presenting him to you as one of the most indefatigable workers, one of the most earnest seekers after truth, one of the very closest of skilled observers, one of the most sagacious expositors of vegetable and animal life, I shall not have altogether failed in accomplishing the design which I wished to offer you on this commemorative day—a presentment of John Hunter as a biologist in the widest sense of this now much-used word. For this I have made large use of his own words, because these best show his mind, and "the mind is the man."

The Arris and Gale Lectures

ON

THE CENTRAL NERVOUS MECHANISM OF THE RESPIRATION.

Delivered before the Royal College of Surgeons on Feb. 18th and 20th, 1895,

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LECTURE I.

GENTLEMEN,—In these three lectures I propose to give an account of the nervous mechanism which produces respiration and to point out some of the practical uses to which this knowledge may be put. In doing so I have no wish unduly to separate this particular physiological action from the other vital functions of the nerve matter situated in the base of the brain. It is closely allied with the vascular mechanism and with the internal or tissue respiration producing heat. I began to make observations on this subject when I was collecting matter

for the essay on Intracranial Tumours and Abscess which received the Jacksonian prize. The work has been carried out at first at the laboratory of the Brown Institution and later in the pathological laboratory of University College. I am indebted to the Royal Society and also to the British Medical Association for grants of money towards the expenses of this research. My thanks are also due to Mr. Horsley for much help in connexion with the work.

HISTORY, COMPARATIVE ANATOMY, AND PHYSIOLOGY.

[The lecturer then gave a *résumé* of the views held about the respiratory function from ancient times down to Legallois, in whose works, published in 1830, the subject of the central nervous mechanism of the respiration was practically first treated. He then proceeded to consider the comparative anatomy and physiology of the respiratory function, and showed from specimens in the museum of the College how the alimentary canal is used for respiration (*a*) throughout its own length (a loach), (*b*) in its anterior part (salamander and amphioxus), and (*c*) by diverticula (gills or lungs). In certain fishes the air bladder is used as a storehouse for oxygen. In the higher animals muscles are used for respiration which in lower forms are either used for progression or are connected with the alimentary canal. Mr. Spencer then went on to speak of:]

The connexion of the automatic movement of respiration with the roots of the vagi nerves in the bulb.—In the pharyngeal form of respiration these nerves are both the afferent and efferent channel for the gill arches. In mammals it remains the chief afferent channel to the respiratory centre, but its efferent connexions are limited to the larynx, the facial nerve above being the channel for the nose, and as the muscles of the thorax take on a respiratory action efferent impulses go by the spinal cord.

The supremacy of the bulb over respiration and the subordinate influence of the spinal cord.—Legallois[1] was the first to show that an animal continued to breathe regularly after the removal of the cerebrum, cerebellum, and part of the bulb, so long as the section was made above the roots of the vagus group of nerves. On an injury to the origin of these nerves respiration finally ceased. The respiratory function was thus taken out of the category of voluntary movements, in which it had been previously included. Although respiration continues regularly for some time after section of the bulb immediately above the vagus roots, yet within a few hours the animal dies, for the highest centre for heat production and internal respiration and the vaso-motor centre are cut off, and thus a warm-blooded animal cannot live for any length of time. A section through or below the roots of the vagi destroys all respiratory movement except that of the nose and jaw. So long as the roots of the facial are intact[2] rhythmic movements of the nose and jaw occur during asphyxia—that is, when the facial nuclei have been quite separated from the vagi. The transverse section of the bulb immediately below the tubercula acustica abolishes all reflex sensory effects upon respiration from the cornea or nose, as well as the rhythmic movements of the nostrils—the facial muscles being either above the section or actually traversed by it. The first transverse section immediately affecting respiration runs just below the facial nucleus. The respiration becomes deeper and slow, with prolonged inspiration, just as after section of both vagi in the neck;[3] in other words, the regulatory fibres of the lungs are connected with the highest part of the centre, and this fact has been confirmed by finding that the fibres enter the bulb by what is now called the "glosso-pharyngeal root." A transverse section at the level of the alæ cinereæ causes the respiratory movements to become irregular, sometimes periodic, and breathing comes to a standstill altogether by passing through the stages of asphyxia. Evidence as to a similar limit to the respiratory centre in man has been obtained from anencephalous monsters[4] in which life has been prolonged even for four days. A fœtus in whom the cerebrum and part of the cerebellum had been destroyed during birth continued to breathe regularly at the rate of six per minute after complete section of the bulb by scissors 1 cm. above the calamus scriptorius.[5] But a section immediately below the calamus abolished all respiration together with the reflexes. The effect of dividing the spinal cord below the bulb was known to Galen.[6] He stated that when the spinal cord was divided between the first and second cervical vertebræ the animal immediately died, when between the third and fourth natural respiration was lost, and when below the sixth the diaphragm continued in action, the muscles of the thorax remaining stationary. After a section lower down the thoracic muscles were capable of movement. The effect of such injuries to the spinal cord are, unfortunately, too well known in man. Rhythmic movements of the facial muscles may continue for a long time if artificial respiration be intermittently performed. When the bulb is isolated[7] by dividing it from the cerebrum, cutting the vagi nerves and the spinal cord below the sixth cervical vertebræ, the diaphragm continues in regular action. In a frog[8] the cerebrum, including the mesencephalon, has been removed and the cord divided behind the atlas and destroyed, the lungs and even the heart extirpated, so that the bulb is entirely cut off from all peripheral influences, only 5 mm. of brain matter being left. Yet regular movements of the mouth, nose, and vocal cords go on, and traces of respiratory movement have been found so long as twenty hours afterwards. Experiments such as the foregoing seem to show clearly the supremacy of the bulb over the respiratory movement, and the unimpaired connexion of the spinal nerve roots with the bulb a *sine quâ non*. Yet some have held the view that the ganglion cells in the anterior cornua of the spinal cord are the real sources of the movement, the bulb merely coördinating the whole. This opinion is founded upon the occurrence of rhythmic movements of the respiratory muscles after the separation of the cord from the bulb. They are seen in newborn animals[9] which are kept warm, in animals of about six months when strychnine has been administered;[10] in adult dogs after artificial respiration has been kept up from one to four hours.[11] In all these cases there is a very high excitability of the spinal cord, so that rhythmic movements of the limbs occur along with those of the trunk, and all reflexes are exaggerated. The rhythmic movements of the respiratory muscles in no way aid respiration. The animal dies as quickly when they occur as when they do not unless artificial respiration be performed. Indeed, there is no real inspiration[12] from enlargement of the thorax, for it is the muscles of extraordinary expiration which act strongly and without coördination, so that although the thorax may be rhythmically constricted it never dilates during such movements beyond the position of rest. The only positive evidence in favour of inspiration occurring after division of the spinal cord from the bulb is furnished by Langendorff's[13] experiments upon the tortoise. After the division the inspirations as seen in his tracings become very much less and are followed by a forced expiration. If the small inspiration recorded be not due to some error in the experiment, such as the recoil of the lever beyond the position of rest after the forced expiration, one must admit that a small inspiration can be produced by the spinal respiratory centres of the tortoise. The arrest of respiration on section of the cord just below the bulb has been attributed to inhibition from the effect of the injury (shock).[14] A much longer incision, however, can be made exactly in the middle line of the same region of the cord without affecting respiration, and a section above the roots of the vagi, were the arrest caused by inhibition, ought to have a like effect.

Brown-Séquard, however, in his last paper maintained the position he had always held—viz., that respiration was dependent upon nerve elements to be found throughout the base of the encephalon and cord. He laid special stress upon those cases in man in which a tumour involved the bulb, and in those in which a dislocation of the axis upon the atlas vertebra causes the odontoid process to press

[1] Legallois: Œuvres, tome i. Paris, 1830.
[2] Flourens: Du Système Nerveux, p. 199. 1842.
[3] Markwald: The Movements of Respiration. London, 1888.
[4] Lallemand: Recherches Anatomiques sur l'Encéphale, tome iii., p. 230. Arnold: Bemerkungen über den Bau des Hirns und Rückenmarks. Zürich, 1838. Lawrence: Medico-Chirurgical Transactions, 1814, vol. v., p. 165.
[5] Kehrer: Zeitschrift für Biologie, 1892. Band xxviii., p. 450.
[6] Galen: De Anatomicis Administrationibus. Kühn, lib. viii., cap. ix. De Symptomatum Causis, lib. i., cap. v.
[7] Rosenthal: Archiv für (Anatomie und) Physiologie, 1865, p. 191.
[8] Langendorff: Ibid., 1887, p. 285.
[9] Brown-Séquard: Journal de Physiologie, 1860, tome iii., p. 151. Archives de Physiologie, 1890, p. 371; 1893, p. 131.
[10] Rokitansky (Procop): Medicinische Jahrbücher, 1874, p. 30.
[11] Wertheimer: Journal de l'Anatomie et de la Physiologie, 1886, tome xxii., p. 458.
[12] Markwald: Loc. cit. Laborde: Comptes-rendus de la Société de Biologie, 1890, tome ii., p. 620.
[13] Langendorff: Archiv für (Anatomie und) Physiologie, 1891, p. 486
[14] Langendorff und Nitschmann: Ibid., 1880, p. 510.

backwards upon the cord. In such cases breathing continued for some time, although in some of the cases there was paralysis of the limbs and larynx. These cases of tumour in the bulb were many of them recorded long ago, and only scanty details are given as to the part of the bulb actually involved. Paralysis of the limbs simply proves the pyramids to have been affected, and the laryngeal paralysis may have arisen from pressure on the vagus roots. There has been no microscopical evidence to show that the region of the roots of the vagi were actually involved, and the tendency of slow growing tumours to displace nerve elements without robbing them of their functions is well known. A gradual dislocation backwards of the odontoid process narrows the foramen magnum antero-posteriorly without necessarily pressing on the lateral columns in which the respiratory tracts descend. Moreover, cases of dislocation of the odontoid process ultimately die from impaired respiration. If one were to assume that a specimen of a dislocated axis had reached the full displacement found post mortem without impairing the breathing, we should be unable to explain the patient's death and the impaired breathing which preceded it.

[Mr. Spencer then went on to consider the different connexions of the respiratory centre. In mentioning the discrepancies that obtain in the results of different observers, he pointed out how necessary it was that the degree of anæsthesia should be carefully recognised. He then continued:]

The respiratory centre can be affected by the excitation (*a*) of the vagi nerves, (*b*) of the cortex cerebri, (*c*) of all sensory nerves, and (*d*) of the floor of the fourth ventricle.

(*a*) *The vagi nerves.*—Owing to the differences in the description and nomenclature of the nerves passing through the jugular foramen considerable confusion has arisen. The nerves called glosso-pharyngeal, vagus, and spinal accessory outside the skull do not correspond in the composition of their fibres with the intracranial nerve roots which bear these names. Some have assumed that these nerves could be divided into a sensory and motor portion like a spinal nerve, whereas all evidence tends to show that the fibres outside the bulb are completely mixed. It is a matter for regret that the description given by Willis[15] and illustrated in his drawing has not been generally followed. He speaks of the eighth pair of nerves as the vagi or wandering pair, using the word vagus in an anatomical sense. He likewise employs the term accessorius in its primary anatomical meaning to describe his spinal nerve as approaching and adhering to the vagus. The chapter containing his discovery of the nerve is entitled "Of the Spinal Nerve, an Accessory to the Wandering Pair." By many writers a physiological significance has been imported, as if the word accessory were used in its secondary sense of aiding the vagus. This error of using the term accessory in its secondary sense of aiding has led to the farther error of applying this term to fibres which do indeed aid the vagus—viz., the lowest of the fibres arising from the bulb, which Willis included in the vagus. Thus the spinal accessory of one writer has a spinal origin, and the spinal accessory of another has a bulbar origin. I shall keep to the description of Willis and apply the word vagus to all the roots arising from the bulb. The spinal accessory nerve of Willis is quite distinct from the vagus, both in its origin, in its course, and in its distribution to the sterno-mastoid and trapezius, and finally, as I shall show, in its structure. It is absent in fish and snakes, whilst in other reptiles, amphibia, and birds it varies according to the development of the neck muscles to which it is distributed. The vagi, on the other hand, are constant in all vertebrates, arising from the lower half of the bulb in a well-developed form. By careful dissection the spinal nerve of Willis can be easily separated from its adhesions to the lower roots of the vagus. In man, no doubt, the fibrous sheath is tough and the nerves have generally softened from post-mortem decomposition. But in the stillborn fœtus I have found no difficulty in separating the spinal accessory away from the vagus by simply using needles. The same can be done in the species of monkey (Maccacus rhesus) I used in my experiments, in a gibbon I dissected at the Zoological Gardens by the kindness of Mr. Beddard, in a chimpanzee which had been experimented upon by Messrs. Beevor and Horsley, and also on one contained in the college stores. In the rabbit, horse, mule, ass, and dog, all the roots from the bulb are intimately united, and the spinal accessory runs distinctly apart. Undoubtedly in the cat there is a closer adhesion between the spinal accessory and the lower bulbar roots. I have under the microscopes specimens of the nerves in a monkey. The nerves were hardened *in situ*, cut whilst embedded in paraffin, and stuck on the slides before the paraffin was removed. It will be seen that the spinal accessory nerve of Willis is similar in structure to the hypoglossal, whilst the vagus roots all resemble in structure the white rami communicantes of the sympathetic system of nerves. That the vagus roots should resemble the sympathetic rather than other cranial nerves is not surprising. In the cyclostomes the vagi include the sympathetic and extend to the anus. Even in higher mammals there is no sharp boundary between them. The ganglion of the trunk of the vagus is closely connected with the superior cervical ganglion, there is an intimate connexion in the anulus of Vieussens, in the cardiac and pulmonary plexuses, and lastly in the abdomen, where the fibres of both completely intermingle. The sections and drawings which I show you illustrate the following points. The spinal accessory nerve of Willis as well as its separate roots consists entirely of large medullated fibres collected into a compact nerve with hardly any connective tissue and nuclei separating its fibres. It is thus similar in structure to the hypoglossal. Where it is adherent in the jugular foramen to the lowest vagus roots it is separated from them by a distinct connective tissue sheath. It shows no ganglion cells on any part of its course. The size of the nerve before it adheres to the vagus roots is the same as when it has separated to go to the muscles. There is a gap between the uppermost of its roots and the lowest of those from the bulb, between which the posterior cerebellar artery runs backwards.[17] All the vagus roots have the same character. They consist in the main of small medullated fibres with a few large medullated fibres scattered among the smaller ones. Separating the fibres in each root is a considerable amount of connective tissue and nuclei. Moreover, all have ganglion cells upon them. From the roots nearest to the nerves down to the lower end of the bulb there is no gap between the several roots. It is only as the roots approach the foramen that they become gathered into separate trunks. The lower vagus roots have a number of ganglion cells upon them. In the section of each root there is at least one ganglion cell to be seen.[18] These roots are gathered up together and become applied to the dorsal and anterior part of the spinal accessory, but, as aforesaid, separated from it by connective tissue. The spinal accessory afterwards separates completely. These lower root fibres communicate with the ganglia on the main vagus trunk, but it does not completely fuse with the latter until the lower end of the ganglion of the trunk of the vagus. The upper and middle roots are collected into two trunks as they enter the jugular foramen. Each has a ganglion upon it, and in the foramen these two ganglia become intimately united. Thus, microscopical examination distinctly separates these roots from the spinal accessory nerve of Willis, and shows that there is no gap in the origin of all the vagus roots, that they are similar in structure, and are intimately connected in or just beyond the jugular foramen.

LECTURE II.

THE FUNCTION OF THE VARIOUS ROOTS OF THE VAGUS, ESPECIALLY OF THOSE AFFECTING RESPIRATION.

[Mr. Spencer commenced by giving reasons for his choice of the monkey to experiment on, and gave a short description of his methods. He continued:]

If I place the results hitherto obtained in a tabular form it will show the chief functions of the vagus nerve roots in order from above downwards; but this order must be taken in a very general sense. There is, as I have shown, no gap in the nerve roots coming from the bulb. It is, therefore, very easy for the electrical current to spread or for injury to be done to adjacent roots in the attempts made to divide or separate them. Even if such a division into upper, middle, and lower vagus roots be granted, yet different observers will not make exactly the same divisions. With all due allowance

[15] Willis, Thomas: Works, ch. xxviii., p. 141, tables 9 and 10. London, 1684.

[16] Toussaint, quoted by François-Franck: Comptes-rendus de la Société de Biologie, 1881, p. 78.

[17] Claude Bernard: Leçons sur le Système Nerveux, vol. ii., p. 266 1858.

[18] Remak: Froriep's, Neue Notizen, 1837, No. 54, p. 150.

for this the following table roughly expresses the results hitherto obtained:—

Table of the Functions of the Vagus Roots.[19]

		Afferent.	Efferent.
Vagus	Upper roots = "IX. nerve"	Regulatory fibres of respiration (lung).	Cricothyroid.
		Fibres exciting respiration (inspiratory).	Stylopharyngeus.
		Superior laryngeal.	Œsophagus.
			Pharynx (constrictors).
	Middle roots = "X. nerve"	Fibres inhibiting respiration (expiratory).	Gastric.
		Bronchial (cough).	Bronchial (muscular).
			Inferior laryngeal.
	Lower roots of bulb		Cardio-inhibitory.
			Levator palati and azygos.
Spinal accessory nerve of Willis = "XI. nerve"			Sterno-mastoid and trapezius.

The fibres which come from the lung enter through the highest roots, for the division of these roots produces the same changes on respiration as does that of the vagi in the neck. The first transverse section across the bulb which involves the respiratory centre has also this effect. If these fibres be stimulated when anæsthesia is slight the effect is an excitation of respiration. Should the stimulus be greater there is a tendency to arrest in inspiration or over inspiration. Excitation of the middle vagus roots in not too deep a stage of anæsthesia produces cough, in a deep stage arrest in expiration. No doubt if a stronger current be employed in a monkey completely anæsthetised, arrest in expiration can be obtained from any of the vagus roots, yet the middle roots always arrest with the weakest stimulus. Stronger currents tend to spread and are therefore a source of fallacy. If the proximal end of the middle roots be excited the same arrest in expiration occurs as when the fibres are stimulated in continuity. When the distal end is excited after division the larynx is closed by the adduction produced, and thus the respiration is rendered slow and laboured as by excitation of the recurrent laryngeal nerve itself. The weakest current affects the cardio-inhibitory fibres. In the monkey a current with the secondary coil 16 cm. distant from the primary has a greater influence on the heart than the excitation of the vagus in the neck with a current 8 cm. away from the primary coil. Those fibres which most readily inhibit the heart are the lower roots of the vagus.

ON THE INTIMATE STRUCTURE OF THE CENTRE OF THE BULB.

It is chiefly by experiments such as those just described that our knowledge has been extended with regard to the physiology of the bulb itself. The nature of the experiments made upon the bulb have been chiefly cutting operations, and therefore liable to produce complications. Thus Flourens and Laborde[20] found that an animal could be instantly killed by removing the layer of grey matter at the calamus scriptorius, which is exposed by the separation of the posterior median columns of the spinal cord. This "nœud vital" experiment must, however, produce its result through neighbouring structures, for the bulb and upper part of the spinal cord can be divided down the middle line,[21] including the calamus, without arresting respiration on either side. Other experiments have been equally contradictory, the "intermediary bundle,"[22] the "ascending root of the ninth and tenth nerves,"[23] two groups of cells[24] nearer to the middle line than the hypoglossal roots, the "dorsal nucleus" of the pneumogastric,[25] a circumscribed zone in the formatio reticularis lateralis[26] external to the hypoglossal roots have each in their turn been claimed as the essential seat of automatic respiratory movement. In young animals[27] the roots of the nerves going to respiratory muscles are supplied from both sides of the bulb, so that a hemisection at the upper end of the cord causes only a temporary or slight impairment of respiratory movement on the side of the lesion so long as the origin of the phrenic nerve is not injured. In order to avoid the complications produced by injuring the bulb I have made a number of observations on the excitation of different points of the floor of the fourth ventricle. The floor was exposed by removing a portion of the occipital bone and then raising the middle lobe of the cerebellum or actually removing it in part or wholly. The results have served to confirm those just described on the vagus nerve. At the level of origin of the upper vagus roots respiration may be excited and over-inspiration may be produced. At the level of the middle roots, if the animal be in deep anæsthesia, there is always arrest in expiration, behind this at the level of origin of the lowest vagus roots cardio-inhibition.

The cerebrum and respiration.—Whilst experimenting upon the fourth ventricle I found that respiration could be affected by excitation of the floor far above the roots of the vagus. Recognising that this must be due to the stimulation of the fibres descending from the cerebrum to the respiratory centre I turned to the research which is described in the last number of the Philosophical Transactions under the title of "The Effect produced upon Respiration by Faradaic Excitation of the Cerebrum in Monkey, Dog, Cat, and Rabbit."[28] No definite results had been obtained by previous observers, the animals having been either too deeply or insufficiently narcotised. Munk[29] alone had some results which as far as they go were confirmed by my own. Christiani[30] and also Martin and Booker[31] found respiration to be influenced from the mesencephalon, especially at the side of the hinder end of the third ventricle and the aqueduct of Sylvius. They supposed their experiments to show respiratory centres in the mesencephalon, but I have no doubt that they stimulated the tracts leading from the cortex to the respiratory centre in the bulb which I am about to describe. As a result of a number of experiments upon the four species of animals—cat, dog, rabbit, and monkey—by excitation of the cerebral cortex, and the surfaces of cerebral sections carefully made in a vertical plane backwards to the bulb, I found four different results, each obtainable from a distinct area on the cortex, and traced each back along a definite line. These four effects I will proceed to illustrate by photographs and tracings, and it will be seen that they are such as can be produced upon the respiration by means of the will. (*a*) The first effect is that which leads to a diminution of action on the part of the respiratory centre, and finally to an arrest. Slowing consisted in a definite diminution of the rate of respiration during the time of the stimulus, and if the strength of the stimulus were increased there was an immediate arrest of the rhythm. This arrest might last for a minute or more if the stimulus were strong enough. Generally respiration started again at the previous rate immediately on the cessation of the excitation. If the stimulus were insufficient it might only momentarily arrest it. The cortical area from which this result was obtained is situated upon the frontal lobe just outside the olfactory tract, anterior to the point where it joins the temporo-sphenoidal lobe, as indicated by the crossing of the Sylvian artery. The same result was obtained along the line of the strand of fibres known as the olfactory limb of the anterior commissure. After decussation in the latter structure the tract continued backwards by the side of the infundibulum into the red nucleus below and external to the aqueduct in the plane of exit of the third nerve. That the strand of fibres on either side decussates in the middle line may be shown by making hemisections backwards until the anterior commissure be reached. Before the hemisections have reached the level of the anterior commissure the cortex of the sound hemisphere still retains its power of arresting respiration. When, however, the hemisections pass the anterior commissure the cortex of the sound side loses its excitability, but arrest can then be obtained from the mesial cut surface of the anterior commissure. The fibres affecting respiration are thus excited just

[19] (Early.)—Bischoff: De Nervi Accessorii Willisii Anatomia et Physiologia Commentatio, p. 94. Darmstadii, 1832. Claude Bernard: Loc. cit. Waller: Gazette Médicale, 1856, p. 420. Chauveau: Journal de Physiologie, 1862, tome cxci. (Recent.)—Beevor and Horsley: Brit. Med. Jour., vol. ii. 1888, p. 220. Semon and Horsley: Philosophical Transactions, 1890, p. 187. Grabower: Archiv für Laryngologie und Rhinologie, 1894, Band ii., p. 143. Grossmann: Sitzungsberichte der Wiener Akademie der Wissenschaften, 1889, Band xcviii., pp. 385, 466. Rhéthi: Ibid., 1892, p. 381; 1893, p. 201. Grossmann: Pflüger's Archiv, 1896, Band lix., p. 1. Kreidl: Ibid., p. 9.

[20] Loc. cit.

[21] Volkmann: Wagner's Physiologie, 1846, Band i., p. 391.

[22] Longet: Archives Générales de Médecine, 1847, tome xiii., p. 377.

[23] Gierecke: Centralblatt für die Medicinischen Wissenschaften, 1885, p. 591.

[24] Mislawsky: Ibid., p. 465.

[25] Holm, quoted by Gad and Marinesco.

[26] Gad and Marinesco: Comptes-rendus de l'Academie des Sciences, 1892, tome cxv., p. 444.

[27] Langendorff: Archiv für (Anatomie und) Physiologie, 1881, p. 78; 1893, p. 397.

[28] Spencer: Philosophical Transactions, 1894, vol. clxxxv., p. 669.

[29] Munk: Ueber die Formationen der Grosshirnrinde, p. 614. Berlin, 1890.

[30] Christiani: Zur Physiologie des Gehirnes, chap. i. Berlin, 1889.

[31] Martin and Booker: Journal of Physiology, vol. i., p. 370.

after decussation. The character of the arrest varied in different stages of anæsthesia—the deeper the anæsthesia the greater the tendency to arrest in expiration; in lighter anæsthesia arrest was either in full inspiration or in over inspiration.

(*b*) The other effects found have the tendency to increase the action of the respiratory centre in the medulla. The respiratory rate may be greatly accelerated, but what is gained by acceleration may be partly lost by diminution in amplitude. This diminution does not neutralise, however, the increase of rate, because apnœa may be produced in this way. In an imperfectly anæsthetised animal any excitation of a sensory surface may tend to cause some acceleration, but the tracings in my animals show that this is a very marked acceleration of the rate unaccompanied by any irregular movements. The cortical area on which the greatest acceleration can be obtained lies around the upper end of the infra-orbital sulcus in the dog and cat. In the rabbit the point is marked by a vessel which comes up between the mesial edge of the hemisphere and the falx cerebri, and then turns out over the convex surface, grooving the surface of the cortex in a line which suggests correspondence with the crucial sulcus in the cat and dog. Marked acceleration is obtained on either side of the vessel at the edge of the hemisphere. The position is similar in the monkey—viz., about the sulcus X. The acceleration may be followed back through the lenticular nucleus, where it borders on the outer ventral portion of the internal capsule. The strand runs at first externally and then ventrally to the motor portion of the internal capsule and so reaches the tegmentum. The lines from the two sides meet in the interpeduncular grey matter at the level of and just below the plane of exit of the third nerve. A hemisection in front of the exit of the third nerve does not remove the acceleration effect from the cortex of the remaining hemisphere. On the other hand, a hemisection immediately in front of the pons does so.

(*c*) Another increased action of the respiratory centre can be obtained, resembling that made by snuffing. The four species of animals reacted in a similar way. The animal first made an over inspiration, then several sharp over inspirations were super-imposed and followed the primary one. These over-inspiratory jerks were peculiar in following one another at regular intervals in a rhythmic manner, and not ceasing exactly at the same time with the stimulus, one, two, three, or more over-inspirations taking place after the cessation of the stimulus. To this movement I have given the term over-inspiratory clonus. Each over inspiration was followed by a sharp expiration, during which the thorax did not reach the position of equilibrium—that is, there was no action of expiratory muscles. This effect was obtained from the mucous membrane of the upper part of the nose, from the olfactory nerves, bulb, and tract. On applying the stimulus in a line backwards along the olfactory tract, this snuffing movement was traceable to the uncinate convolution of the temporo-sphenoidal lobe. From the uncus it passed behind the optic tract to the crus, and thence obliquely inwards underneath the crusta. Thus the tract on each side converged to meet in the middle line at the upper border of the pons. Excitation of this point was the only place on the section where this result could be obtained.

(*d*) The fourth effect which can be obtained from the surface of the cerebrum is a widely generalised one, because it can also be got by the excitation of any sensory nerve. The chest assumes a position of over inspiration by means of the tonic contraction of the extraordinary muscles of inspiration, but the rhythmic movements of the ordinary muscles continue in a regular manner. If an excessive stimulus be used the over-inspiratory spasm produces a pseudo-arrest by masking the rhythmic movements. But the latter can be seen to continue, only obscured by the tetanic spasm. The sensory motor area on the cortex and the descending motor tract specially yield this result. It can also be got from the fifth nerve and from the sciatic after complete removal of the cerebrum at the level of the tentorium cerebelli.

SUMMARY OF THE AFFERENT CONNEXIONS OF THE RESPIRATORY CENTRE.

Sensory nerves of all kinds tend to *excite* the respiratory centre in the direction of inspiration, any acceleration of the rate being due to the will, and, therefore, not obtainable in anæsthetised animals. If the stimulus be too strong the thorax is driven into an over-inspiratory spasm, but the respiratory rhythm is here not really arrested except by the spasm of other muscles counteracting those of ordinary respiration. Such inspiratory spasms are seen in any wide excitation of the skin, such as by cold water, tickling, and in the first stage of drowning. When the spasm comes to an end in the last case bubbles of air escape from the mouth. This inspiratory[32] spasm in the first stage of drowning is not dependent on the will, for it takes place in a narcotised animal; nor is it due entirely to the cold, for it takes place in water at the temperature of the blood; neither is it wholly due to inhibition from the larynx, for respiration is arrested in rabbits although a tube may have been previously placed in the trachea and its free end kept above water. The vagus nerve in the neck contains inspiratory fibres which enter the bulb through the upper roots. The centre of the sensori-motor area of the cortex is likewise influenced in the same way—e.g., in epileptic fits. This inspiratory influence through sensory nerves is entirely lost in deep anæsthesia, so that the strongest current applied, for instance, to the fifth nerve has no effect on respiration. The respiratory centre can be *inhibited*, its rhythm slowed and arrested in expiration, and the chest remains motionless in the position of equilibrium. This takes place by electrical excitation of the fibres entering by the middle roots of the vagus, by excitation of an area on the cortex cerebri and of a tract connecting this area with the medulla, and by excitation of the floor of the fourth ventricle. The deeper the anæsthetic the more readily is the inhibition obtained uncomplicated by inspiratory influence. Acceleration of the rhythm apart from the influence of the will of the animal is far more marked on the cerebral cortex and on a tract leading down to the bulb. Probably it is difficult to get such acceleration from the floor of the fourth ventricle on account of the simultaneous excitation of inhibitory influences. From the nose two forms of excitation may pass back to the respiratory centre—an inspiratory tonic effect through the fifth nerve and an inspiratory clonic effect through the olfactory nerves and brain. No inhibition of respiration was obtained from the nose in anæsthetised animals. The arrest of respiration which other observers have noted has happened in animals fully awake. When tobacco smoke or chloroform is blown into the nose of a rabbit it holds its breath. The will is the cause of the arrest in this and other powerful sensations which can be perceived by the animal.

Over-action of the respiratory centre.—The respiratory centre can be stimulated by changes in the composition of the blood supplied to it: (1) by excess of carbonic acid; (2) by deficiency of oxygen; (3) by an increase of oxygen, especially if the centre be failing; (4) by an increase in the temperature of the blood; and (5) by the products of muscular metabolism.

1. An excess of carbonic acid gas in the air breathed begins to cause hyperpnœa when it reaches to 3·5 per cent.[33] This is about the amount contained in expired air. In air containing about 5·5 per cent. breathing has to be as deep as possible, and at double the normal rate. If the amount of carbonic acid gas be greater distress becomes marked when the carbonic acid gas amounts to 10 per cent., even although there be an ample supply of oxygen. If, however, the carbonic acid be mixed with oxygen—an air in which oxygen has not been diminished—7 per cent. of carbonic acid can be for a time inspired without harm. The hyperpnœa thus excited by the carbonic acid introduces sufficient oxygen.

2. Reduction of oxygen to 12 per cent. excites respiration, but not to the extent of the corresponding increase in carbonic acid. Marked hyperpnœa is caused with 9 per cent. of oxygen. When reduced to 7 or 6 per cent. there is a tendency to loss of consciousness, paralysis of limbs, and impairment of breathing. We are well acquainted with this diminution of oxygen in the course of the administration for anæsthesia of nitrous oxide or nitrogen gas.

3. An increase of oxygen tends to stimulate a failing respiratory centre. The administration of air restores the respiration to the normal; oxygen in a more concentrated form produces general excitement and stimulates the respiratory centre so much that apnœa does not occur.

4. A most powerful stimulant to the rate of rhythm and to its depth is a slight increase in the temperature of the blood flowing through the bulb. Either the blood in the carotid

[32] Falk: Archiv für (Anatomie und) Physiologie, 1869, p. 249.
[33] Haldane: Proceedings of the Physiological Society, 1894. Proceedings of the Royal Society, 1895. Haldane and Lorrain Smith: Journal of Pathology and Bacteriology, 1893, vol. i., p. 168.

may be warmed or the animal may be overheated.[34] Thus in an experiment when the temperature in the vagina or rectum was 39·8° the rate was 42 per minute, at 41·1° C. 142.[35] A dog with a rectal temperature of 39·2° C. and a respiratory rate of 20 per minute was placed in a chamber at 73° C., when the rectal temperature rose to 40·8° C., the respiratory rate quickened to 50 per minute, more than double the amount of air passing in and out per second. During this acceleration by heat the animal cannot be made apnœic, and moreover shows great resistance to narcotic poisons. Thus morphine or chloral may be given in a sufficient dose to lower the rectal temperature and impair the respiration. On the application of heat sufficiently to raise the rectal temperature 1° C. above the normal the respiration rate may be doubled.[36]

5. The centre is further excited by the products of muscle metabolism. Afferent stimuli being excluded by division of the spinal cord, the tetanising of the muscles of the hind limb[37] causes an increase in the respiratory rhythm, whilst the oxygen and carbonic acid in the blood remain normal. Thus during work increased respiration keeps the amount of oxygen and carbonic acid in the blood normal. In the horse the amount of oxygen taken in and the carbonic acid given out is enormously increased during movement, the respiratory quotient not altering as compared with that during rest.[38] The walk increases the respiratory interchange about two and a half times, the trot five times that of the rest; in the gallop ten to twenty times more air is taken in and given out.[39] This enormous increase in respiration is connected with the diminished alkalinity of the blood[40] from an excess of lactic acid produced by muscular activity. This acid acts as a direct excitant to the respiratory centre of the rabbit.[41] The carbon dioxide diminishes the alkalinity of the blood, and the excitation which it causes may be an instance of the same kind—viz., the excitation of the centre by a weak acid. In diabetic coma not only lactic acid but acetic and oxybutyric acid[42] have been found in the blood. When sugar in sufficient quantities to affect a dog is injected lactic acid is found in the blood. Diabetic coma and rapid tissue changes in fevers may, therefore, have a double excitatory influence on the respiratory centre by diminishing the alkalinity of the blood, as well as by raising its temperature.

Diminished action of the respiratory centre.—The action of the respiratory centre may be lowered: (1) by diminution in the amount of carbon dioxide in the blood, provided that this is not neutralised by excess of oxygen, or of temperature, or of the products of metabolism—this diminution may be due to removal by forced artificial respiration or by a diminished production of carbon dioxide; (2) by excess of carbonic acid (asphyxia) and poisons (anæsthetics &c.); and (3) by impairment of the circulation through the centre, whether by failure of the heart, by vaso-motor paralysis, or by increase of intracranial pressure.

Apnœa.[43]—Forced artificial respiration by removing more carbonic acid from the pulmonary alveoli causes the blood to become of a more scarlet hue. If this be done with air at the temperature of the room the animal is rapidly cooled. Long apnœic pauses are obtained when the centre has been depressed by the cooling. After artificial respiration for one minute a pause may follow for twenty-five to thirty seconds, after artificial respiration for two minutes a pause of two minutes, or for ten minutes after artificial respiration for half an hour. At the end of the apnœa the blood has lost its bright colour and natural breathing begins. After making a number of deep respirations the length of time during which a man can hold his breath can be extended from a quarter of a minute to one minute or more. The conditions, however, are not exactly the same as in experiments upon animals, for whilst holding the breath expiratory muscles gradually compress the air in the lungs and so favour the entrance of oxygen, as in the Cetacea. (See below.) When we turn to other conditions in which apnœa occurs—viz., the apnœa of the fœtus, that existing during hybernation, or in those apparently dead—we must take into consideration the important relations which the central nervous mechanism of the respiration has with that of the heat regulation or internal respiration,[44] and that of the vaso-motor mechanism. The mechanism of heat regulation in warm-blooded animals is intimately connected with respiration, for the excess of CO_2 given off in the production of heat must be got rid of. But before birth and for a variable time after birth the animal is more or less cold-blooded—i.e., has not yet developed a complete heat-regulating mechanism.[45] Thus new-born mammals such as rats, mice, and puppies react like cold-blooded animals, their temperature sinks towards that of the surrounding medium, and at the same time there is a corresponding fall in the amount of CO_2 given out. Soon after birth they gain a heat-regulating mechanism, which becomes so established that when placed in an atmosphere colder than themselves they give out more CO_2 and maintain their temperature. Thus in young blind mice about three days old on a fall of temperature from 30° to 20° C. there is a lessening in the discharge of CO_2 within thirty minutes to about one half; a few days later, on the other hand, there is a rise in the CO_2 given out under similar circumstances. A chick in the egg reacts like a cold-blooded animal, its temperature falling with that of the medium and less CO_2 being given out. It reacts like a warm-blooded animal after hatching, and it has then control over its muscles and is able to run about. A pigeon when hatched is blind, naked, and helpless, one of the parent birds is constantly sitting over it and feeding it, and when exposed to cold it reacts like a cold-blooded animal.

The human fœtus[46] when born, especially if before term, rapidly cools if exposed to a medium much lower than that of the blood, less CO_2 is produced, and the respiratory centre may not be excited. Hence the answer to one of the questions put by Harvey: Why does a fœtus born in its membranes not breathe? Being like a cold-blooded animal little CO_2 is produced, and the circulation passing by the ductus arteriosus is not obstructed in attempting to pass through the lungs. Life—that is, the circulation—has been said to last in a new-born child, especially before term, for fifteen hours without any apparent respiration. These infants may show after death evidences of injury such as ecchymosis &c.[47] On the other hand, the normal respiratory centre at term is sufficiently excitable to be stimulated by any increase of carbon dioxide above the amount existing in the circulation of the mother. If the abdominal aorta of a pregnant animal at term be compressed the fœtus begins to gape and inspire in the liquor amnii. As in apnœa produced by inflation, so also in the apnœa of the fœtus a sufficient excitation to the skin may produce one inspiration, but is not the cause of the commencement of rhythm. An apnœic fœtus responds to external stimulation by an inspiration, whereas one which has become asphyxiated does not. Whilst under normal circumstances an increasing venosity of the blood is a sufficient stimulus to the centre, yet if the centre be weakened from any cause it may fail to respond to the venous blood, therefore death may occur without any attempt at breathing. The circumstances of a long labour by hindering the circulation of the fœtus may gradually impair the centre, whereas if the venosity of the blood comes on rapidly without any preliminary exhaustion of the circulation a fœtus must inspire whether before or after birth.

When the fœtus has once breathed it must continue to do so. Oxygen, entering with the first breath, raises the excitability of the centre and at the same time stimulates internal respiration, whilst the distension of the lungs from their previous atelectatic state diverts the circulation through them. After the first breath an arrest of respiration places a mechanical hindrance in the way of the circulation, which has now to pass through the lungs. Further also, the more active metabolism increases the amount of CO_2 given off. Hence the answer to Harvey's second question—why it cannot dispense with respiration when once it has breathed—is to be found in the increased excitability of the respiratory centre and the larger amount of CO_2 given off from the tissues. Instead of apnœa asphyxia then occurs. Whilst in an apnœic fœtus an external stimulus may cause it to take

[34] Ackermann: Archiv für Klinische Medicin, 1867, Band ii., p. 357. Goldstein: Würzburger Verhandlungen, 1872, p. 156.
[35] Anderson: Dublin Journal of Medical Science, 1880, vol. lxx., p. 269.
[36] Brunton: Journal of Anatomy and Physiology, vol. viii., p. 332. Brunton and Cash: Ludwig's Festschrift, 1887, p. 149. Wood and Cerna: Journal of Physiology, 1892, vol. xiii., p. 870.
[37] Geppert und Zuntz: Pflüger's Archiv, 1888, Band xlii., p. 189.
[38] Zuntz and Lehmann: Journal of Physiology, 1890, vol. xi., p. 396.
[39] Smith, F.: Ibid., p. 65.
[40] Lehmann: Pflüger's Archiv, 1888, Band xlii., p. 284.
[41] Jacquet: Archiv für Experimentelle Pathologie und Pharmacologie, 1892, Band xxx., p. 11.
[42] Harley: Proceedings of the Royal Society, 1893 and 1894.
[43] Rosenthal: Hermann's Physiologie, Band iv., Theil ii., p. 264. Ewald: Pflüger's Archiv, 1873, Band vii., p. 575.
[44] Hale White: Brit. Med. Jour., vol. ii. 1894, p. 1093.
[45] Pembrey: Proceedings of the Physiological Society, 1894 and 1895.
[46] Preyer: Specielle Physiologie des Embryos. Leipzig, 1885. Engström Skandinavisches Archiv für Physiologie, 1891, Band ii., p. 158.
[47] Bardinet: Gazette Médicale de Paris, 1864, p. 688.

one inspiration and so introduce oxygen, this method must compare unfavourably with artificial respiration, in which there is not the danger of mechanical injury. Exposure in a cold room or the application of cold water, by lowering the temperature, impairs the centre. In a state of asphyxia the fœtus will not respond to external stimuli, and then artificial respiration is the sole remedy, aided always by external warmth—an important adjunct—applied by a hot bath or especially to the neck.

In hybernating animals the absence of respiration is accompanied by a great fall in the production of carbon dioxide. They become cold-blooded, the temperature falling almost to that of the air; at the same time the circulation becomes very feeble. A hybernating marmot or dormouse can live in an atmosphere of CO_2 in which a bird or rat perishes instantly.[48] The respiratory centre is in them in a stage of apnœa, a marmot pinched during hybernation gives an inspiration. A raising of the temperature of the medium excites respiration, the animal recovers its normal temperature, and circulation and muscular activity.

A rapid production of carbonic acid in a warm-blooded animal produces asphyxia, paralysing the respiration. Two influences may delay the onset of asphyxia—a large amount of blood holding a good stock of oxygen, and an increased tension of the oxygen in the lung favouring absorption. The respiration in the Cetacea[49] forms an interesting example in this respect. In them internal respiration must be enormous to maintain a body temperature of 37° C., and they are very active animals. They are characterised by having a circulatory apparatus and an amount of blood much in excess of a land animal of the corresponding size. Seals can remain under water for five minutes and whales for a much longer period, yet the time they spend at the surface is exceedingly short. A dolphin at rest in an aquarium breathed three times a minute. It began with a rapid forced expiration through the vent for one second, the return to the position of equilibrium and an inspiration lasted another second, and this was followed by a pause of eighteen seconds. This pause is really an inspiration during which, the vent being closed, the air is subjected to pressure from the chest walls. In this way oxygen can pass from the lungs into the blood during the time the animal is under water. The excessive amount of carbon dioxide which has collected during the pause whilst the animal is under water is got rid of by the forced expiration. It is by imitating this respiration of the Cetacea that men can dive and remain under water in active movement. To show the value of the store of oxygen in a large amount of blood Paul Bert[50] compared the behaviour of a fowl plunged under water with that of a duck. A fowl plunged under water is soon distressed, the inspiratory inhibition gives way, bubbles of air escape, the bird loses consciousness, and falls on its flank with a loss of the corneal reflex in about two minutes. It makes a series of inspirations, the last accompanied by rigidity, and in about three minutes is dead. The duck can remain under water, simply struggling to escape, for seven minutes after immersion without expiring. Its heart beats much slower, and may even fall in rate from 100 to 14 per minute, showing that carbonic acid is collecting, but the conjunctival reflex remains, and consciousness is preserved. The want of oxygen is not felt for seven, ten, or even fifteen minutes, then the animal loses consciousness and its reflexes, lets air escape, falls on its side, makes some inspirations, becomes convulsed, and dies. The behaviour is the same in the two birds, when the trachea is clamped, the fowl dies within three minutes and the duck lives from eight to sixteen minutes, so that the delay cannot be attributed to the custom of diving on the part of the duck. The lungs and air sacs are similar in the two birds. Weight for weight, however, Paul Bert found the duck to contain one-third more blood than the fowl. If about half the blood were first taken from a duck it died as quickly under water as a fowl.

[48] Spallanzani: Memoirs on Respiration, p. 305. Senebier, 1805.
[49] Jolyet: Archives de Physiologie, 1893, p. 610.
[50] Paul Bert: Leçons sur la Respiration, 1870.

THE governors of the Farringdon General Dispensary held their annual meeting on Feb. 12th at the offices in Holborn, Mr. Lacy, the treasurer, presiding. The patients during last year numbered 24,236. The total income for the year was £730. The Hospital Sunday Fund and the Hospital Saturday Fund made grants of £43 and £11 respectively, and a donation of £25 was received through Alderman Treloar. The balance in hand at the end of the year was £109.

Lettsomian Lectures

ON THE

COMBINATIONS OF MORBID CONDITIONS OF THE CHEST.

Delivered at the Medical Society of London on Feb. 18th, 1895,

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LECTURE III.

CLINICAL LESSONS; INVESTIGATION OF CHEST CASES.

Symptomatology.

MR. PRESIDENT AND GENTLEMEN,—Although in my last lecture I placed physical examination in the forefront in relation to the investigation of combined chest cases, I by no means wish to give it undue prominence. On the contrary, I feel it necessary to utter a protest against a practice which is not at all uncommon—namely, to be content with finding out in this way what physical changes or conditions, if any, exist, and looking at the case solely from this standpoint, estimating its importance simply by the presence or absence and the degree of such changes. This is a dangerous error, and I now urge the imperative necessity of an intelligent study of the symptomatology in every instance, and of endeavouring to understand the phenomena complained of or observed in their relation to the morbid conditions present. I say "study" advisedly, as distinguished from a mere enumeration of chest symptoms, which is of little value, as it may apply equally to any number of thoracic cases which are essentially different in character.

I have already pointed out that there may be practically no symptoms even when very pronounced and complicated morbid changes are present in connexion with the chest. This negative aspect, however, must not be overlooked; for it may be highly significant as indicating the pathological nature of these changes, showing that they are not, at any rate, of a serious character in themselves, and that they do not materially interfere with the important thoracic contents. But I have now to deal with chest symptoms from their more positive aspect; and I am anxious to indicate as clearly as possible certain points which, in my opinion, are of the greatest consequence in relation to the subject which forms the basis of these lectures. In the first place, it must be remembered that the thoracic structures are closely related to each other, anatomically and physiologically, as well as pathologically, and it is a great mistake to separate too definitely the symptoms associated with particular organs. It must be familiar to any intelligent clinical observer that there is no actual line of demarcation between the symptoms due to pulmonary and cardiac diseases respectively, and when we have to deal with complicated conditions any distinction of this kind becomes absolutely impossible and mischievous. Under these circumstances it is imperative that they should be studied on a thoroughly comprehensive basis, in order to understand their practical relations and significance. In an acute or sudden case the study of local chest symptoms is of the utmost importance, and may reveal the presence of conditions or disturbances which cannot possibly be determined by physical examination, especially when the state of the patient does not allow such examination to be carried out efficiently. The phenomena, even of individual acute diseases, as described in text-books, are by no means always typical; but when we have to deal with the various combinations to which I have previously referred, they become still less characteristic. It is under these circumstances that the study of the symptoms becomes particularly instructive. The severity and characters of pain and other morbid sensations, the kind of disturbance of breathing and the various noises associated therewith, the peculiarities of the cough and expectoration, and other symptoms, are all worthy of attention, and often reveal important features of the case. The varieties of so-called "dyspnœa" demand special study, for they are often most significant, and we may have to found our diagnosis

of certain conditions very much on what we thus observe. When circumstances permit, and especially in dealing with chronic cases, I think it is a good rule to start by finding out, approximately or even fully, by physical examination what conditions are present in connexion with the chest, and then to study systematically the symptomatology, both comprehensively and individually, in relation to the sum total of these conditions. It must always be remembered that in complicated cases most of the symptoms are either produced or modified by more than one, it may be several, factors; and it is decidedly to our patient's interest and advantage that we should find this out as precisely as possible. A known combination of certain morbid conditions will often prepare us for the occurrence of sudden attacks or accidental lesions, so that we ought to recognise without difficulty the symptoms by which they are respectively revealed.

I wish now to draw special attention to the essential importance of a single symptom in relation to diagnosis in some cases of a mixed character. And here let me urge the great value of the senses of hearing and smell in the detection and recognition of certain of these symptoms, in addition to the exercise of the faculty of keen observation. Let me illustrate this point by two or three examples. A particular kind of disorder of breathing or the characters of a cough may certainly reveal to us at once not a few individual conditions; the characters of the materials expectorated are also often highly significant, and the sudden discharge of a quantity of pus may be the one indication of the bursting of an empyema into the lung, or of certain kinds of abscess into the air passage, of the existence of which we might previously not have been aware. To the sense of smell I have been indebted on several occasions for arriving at an immediate diagnosis as to the presence of conditions which had previously been absolutely overlooked. I allude, of course, to the offensive or fetid odour which the expired air may yield under certain circumstances, especially after a vigorous cough. This has revealed to me bronchiectasis in highly emphysematous lungs, which could not possibly be detected by physical examination, as well as gangrene of the lung in obscure cases, and obvious pyo-pneumothorax, which a careless and limited examination of the upper part of the chest had failed to detect. With regard to the sense of hearing, this is of essential value, altogether apart from auscultation, in recognising peculiar characters of, or sounds associated with, the acts of breathing and coughing, as well as alterations in the voice. I have several times been enabled to make an immediate diagnosis in cases of obscure intra-thoracic aneurysm on these data, some of which had even been admitted into the hospital wards as cases of asthma. One case was so extremely interesting, and taught me such a lesson, that I venture to describe briefly what happened.

A good many years ago, during the early period of my connexion with the Brompton Hospital, on returning home, physically tired and mentally exhausted, after a hard day in the out-patient department, I found a man waiting for me with a letter from a lady asking me to see him (gratuitously, of course) as he was suffering from bronchitis. I told him that I was not fit then to examine him properly, and asked him to come in the morning. It seemed to be a mere case of ordinary bronchitis and emphysema, but, fortunately for me, the patient gave a slight cough, and I instantly perceived that it was one of the obscure cases to which I have previously referred, in which an aneurysm presses directly on the trachea. I told him to go home at once to bed and that I would come to see him in the morning. Before I could do so, however, I received a message that he had begun to spit blood, and within twenty-four hours he died from profuse hæmoptysis, the aneurysm having ruptured into the trachea.

Another aspect of the symptomatology of chest diseases which is of essential importance, but is often regarded very casually, is the relation of general or remote symptoms to these affections, especially when they are of a combined character. Here again I must content myself with merely offering two or three prominent illustrations. The occurrence, type, degree, mode of progress, and associated phenomena of fever are often most significant. Thus we may recognise not only pronounced inflammatory or tuberculous cases, but also those indefinite changes going on in the lungs to which I have previously referred. Moreover, by the presence of fever we may be led to conclude that there must be some obscure condition within the chest, as, for instance, a localised collection of pus, which is entirely out of reach of direct examination. In cases of phthisis I need scarcely say that pyrexia is a most valuable indication as to the activity and progress of the disease. But perhaps one of the most striking illustrations of the diagnostic value of this pathological state is when malignant endocarditis supervenes upon old chronic disease of the cardiac valves, which it may be impossible otherwise to recognise. General wasting is another symptom which is very instructive, as indicating what is going on in the chest, not only in relation to phthisis, but also to other conditions, especially obscure cases of malignant disease, particularly when it involves the pleura. Anæmia, likewise, often deserves thoughtful attention. The phenomena resulting from obstruction of the general venous circulation, notably dropsy, always demand careful study. It is a very common tendency to associate these phenomena simply with heart disease. Let it be remembered, however, that this is by no means their sole cause, and that they may be very pronounced when the heart is practically normal, while in cardiac cases they are often aggravated by pulmonary conditions. This class of symptoms, especially dropsy, is often of great help in determining what is the actual state of things in connexion with the heart, and here it may be particularly noted that functional disorder superadded to organic cardiac disease is often accountable for the occurrence of dropsy or for its temporary aggravation. I will only further state that general symptoms not uncommonly add more or less to the troubles immediately connected with the chest, especially by disturbing the breathing and the cardiac action. The relation of the pulse to morbid conditions of the chest opens up a very wide subject upon which I cannot now attempt even to touch. I will only say that, regarding it merely as a symptom, and without reference to any elaborate methods of investigation, it affords in a large number of instances most valuable diagnostic information about combinations of these conditions which I do not think is always adequately appreciated. I may, by the way, draw attention to the fact that the absence of the radial pulse on one side is another important point to be remembered in relation to the diagnosis of an obscure intra-thoracic aneurysm. I have incidentally referred to certain of the minor structures contained in the mediastinum in my preceding remarks. I wish now merely to point out that interference with these structures, or their implication in actual organic changes, is chiefly indicated by what may be regarded as mere symptoms as distinguished from physical signs. These may be merely modifications of the ordinary chest symptoms, to which, however, they give special characters, such as pain, cough, respiratory disorders, or cardiac phenomena; but some are of special kinds, such as dysphagia due to obstruction of the œsophagus, or signs of implication of the sympathetic nerve, of certain veins, or of the thoracic duct.

Special Methods of Investigation.

It would obviously be impossible for me to deal at any length in these lectures with the various methods which are employed at the present time in the investigation of morbid conditions of the thorax and its contents. I can only indicate their general nature, and say a few words about each in its relation to my subject. Those to which I propose to refer are: 1. Examination of the sputum. 2. The use of certain instruments and other apparatus for particular purposes. 3. Operative procedures. 4. Examination of the larynx and trachea. 5. Examination of the œsophagus.

1. *Examination of the sputum.*—When carried out in a rational manner, there can be no doubt whatever that systematic examination of the materials discharged by expectoration is of the utmost value in many chest cases of a more or less combined nature, by giving us definite information about special pathological changes and conditions associated with the respiratory organs. I have already alluded to certain points relating to the general examination of the sputum, but I take this opportunity of saying that such simple examination is often most instructive, and it is by no means carried out to the extent which, and as methodically as, it ought to be. Of its chemical examination I can say nothing from personal knowledge. As to its microscopical investigation, this is so thoroughly familiar to everyone nowadays that I almost blush to mention it. I will only venture to hint that it is always desirable to carry it out with intelligence and judgment, and that it cannot invariably be relied upon, either from its positive or negative aspect. At the same time I fully recognise its importance, not only in relation to the detection of tuberculous lesions, but also in revealing destruction of the lung tissues, gangrene, actinomycosis, and other conditions, of which we might otherwise have no definite knowledge.

2. *Use of instruments, &c.*—There is undoubtedly a

tendency at the present day among the more scientific members of our profession, especially what I may call the "advanced juniors," to make use for clinical purposes of different kinds of apparatus, not uncommonly of a very elaborate kind, which no doubt give more accurate information about various details relating to the size and conformation of the chest, or the respiratory and circulatory functions and movements, than can otherwise be obtained. Personally I have always had a strong inclination towards simplicity in examination, and have never cared for employing elaborate instruments of any kind, nor do I hesitate to affirm that as a rule they are not required. At any rate, I must again express my opinion that no instrument ought to be allowed to take the place of the trained and educated senses of sight and touch, used in a simple and intelligent manner. With the ordinary kinds of apparatus coming under the present category no doubt you are all familiar, but if you want information with regard to some of the more recently introduced instruments I may refer you to the Goulstonian Lectures for 1894, on the "Physics of the Circulation," by my friend, Dr. Paul Chapman of Hereford, and to the recent work on "Pulse-gauging" by my old friend and fellow-student, Dr. George Oliver of Harrogate.

3. *Operative procedures.*—I must not encroach upon the domain of the surgeon, but I feel bound to point out the essential value of certain operative procedures in the investigation of not a few more or less complicated chest cases, which I have on many occasions found of the greatest service under such circumstances. I allude more particularly, of course, to the use of the exploring needle or trocar, and other measures intended to demonstrate the presence and situation of fluid in either serous cavity, as well as its nature, or the existence of an obscure abscess in the lung or elsewhere, or of a hydatid tumour. More serious operations may be demanded for diagnostic purposes in exceptional instances, but to these I need not further refer.

4. *Examination of the larynx and trachea.*—The inherent importance of laryngoscopic examination in relation to certain intra-thoracic diseases is so well known that I need scarcely do more than mention it. Not only does it directly reveal associated morbid states in the larynx or even in the trachea, especially tuberculous and syphilitic; but the signs produced as the result of interference with one or other of the laryngeal nerves may be almost the only data upon which we can positively recognise an aneurysm or growth obscured by other conditions within the chest. Similar signs may be associated with an adhesion and fibroid thickening in a case of old chronic apical phthisis. I may also allude here to "tracheal tugging," a sign which Surgeon-Major Porter has shown to be of real service in the diagnosis of deep-seated aneurysm.

5. *Examination of the œsophagus.*—In relation to this form of special examination I will merely remark that it may be useful, not only in the investigation of morbid conditions of the œsophagus itself, but also of diseases in its vicinity. Obviously it requires the aid of a skilful manipulator.

REMARKS ON TREATMENT.

It must appear a very rash and irrational procedure on my part to launch out into the vast subject of treatment at the conclusion of these lectures; and yet I cannot resist the inclination to make an attempt to deal with it from certain general aspects in its relation to the combinations of morbid conditions of the chest. Of course, I shall say but little about therapeutic methods or agents, and my object is simply to bring into prominence a few broad principles or indications, which I think need to be specially enforced at the present time, and which my subject obviously and fairly suggests.

1. The management of chest affections is far from being such a simple and easy matter as many people seem to imagine, and they certainly cannot as a rule be dealt with as individual entities, to be severally treated on a routine and settled system or plan, or with a particular remedy, varying according to the age in which we happen to live, the prevailing therapeutic fashion or fad, or the personal and it may be very peculiar and original, views of the individual medical practitioner or "scientific therapeutic." Still less ought we to be content with merely treating symptoms—a practice but too often habitually adopted—sometimes, indeed, with remarkable success and undeserved kudos, for the man who acts on this principle, and who does not take the trouble to investigate his cases, will often administer powerful drugs, with benefit, it may be, when they are in reality very dangerous, and when a well-informed practitioner, who had ascertained the facts of the particular case, would not dare to use them. In the long run, however, this method of procedure is certain to do infinite harm, and to lead to lamentable results, of which but a very small proportion actually come to light; and not only is it directly mischievous and dangerous, but it does infinite harm by allowing serious morbid conditions within the chest to progress unchecked, which might often be arrested, or at any rate controlled, in their early stages, if their presence had been properly detected. And here I must enter an emphatic protest against a state of things extensively prevailing, and with which as a profession we are deeply concerned, that not only permits, but encourages in a high degree, the evil against which I have been speaking—namely, the prevalence of "cheap dispensaries," where so many patients are polished off within the hour; the employment of ignorant unqualified assistants; and the encroachment of the "prescribing chemist" on the domain of the medical practitioner. We do occasionally see in the newspapers some startling revelations brought out in the coroner's court, but these only give a faint hint as to what is actually proceeding on a very large scale. These revelations, however, do not lead to any change, and things go on just as before.

After this digression I return to my point, and must insist on the fact that a large proportion of chest cases, even when they belong to a particular category, must as a necessary consequence of their combined conditions present more or less difficulty in their management, and that they ought always to receive due consideration from a therapeutic as well as a diagnostic standpoint. Sometimes the difficulties are very great, and we may be able to do little or nothing for our patient. But while fully recognising this aspect of the question, I affirm, on the other hand, that much can often be done, even in highly complicated cases, in the way of treatment, if we study them adequately and intelligently, and deal with the existing conditions rationally and judiciously.

2. Now, the first thing we have obviously to determine in relation to the treatment of combined chest conditions in a particular case is what we can and what we cannot do. We are bound to face the uncomplimentary fact that there are morbid changes which we cannot influence materially, or perhaps not at all, and we had therefore better leave them alone. Of course there are grave diseases for which we can do absolutely nothing, and then I think we ought to be very cautious in using powerful drugs or practising special methods of treatment, the good results of which are, to say the least, highly problematic, though of course it is impossible to lay down any "hard-and-fast" rule in this matter, and each case must be dealt with on its merits.

There is another class of cases, of very common occurrence, in which permanent changes in various combinations affect the chest and its contents, not necessarily immediately dangerous or serious in themselves, but which give rise to more or less troublesome symptoms, and yet we can do little or nothing for them directly. Under these circumstances our main indication is to try to get the patient to understand the state of things, to learn to put up with and make the best of them, accommodating himself or herself to existing conditions, and to ward off further evils by judicious care, and avoiding doing foolish acts which are likely to bring on additional troubles. I must say that patients do not like this kind of advice, and as a rule resent our ignorance and incompetency, but really it is often the best and most honest advice that we can give, and in the long run many come to acknowledge this fact. A large number of cases coming under this category merely present the combination of minor changes to which I referred in my first lecture. Others belong to the group, and a very trying and sad one it is, where individuals who have led a too active and energetic life, and who often boast that "they have never had a day's illness," are unexpectedly found out and pulled up by the development of one or more prominent chest symptoms, or by some sudden serious disturbance, and it is then discovered that more or less grave morbid conditions have been slowly but surely progressing for some time, of which these phenomena are the outcome and manifestation. To bring such patients to reason, and to make them understand that they must give up their hunting and shooting, their mountain-climbing, their boxing and fencing, their lawn-tennis, or even their golf, is anything but an easy task for the medical practitioner. Even the "old man" who has long passed his "three score years and ten," and has had a "real good time" in every respect, cannot understand why he should

come to the "end of his tether," and that not even "hypodermic injection of spermine" can infuse new life into him.

There is still another class of cases to which I must allude here—namely, those in which definite and easily recognised chronic morbid conditions exist in the chest, in various combinations, but entirely inactive and quiescent, though no remedies or methods of treatment can modify them in the least degree. There are hundreds and thousands of cases of this kind, to which we apply particular names, and which throng our hospital out-patient rooms, where I venture to affirm that no active treatment at all is needed, and indeed such treatment is often worse than useless. And here let me say a word as to the frequent necessity of a more judicious use of applications to the chest. By way of illustration I may call attention to the fact that to go on applying some preparation of iodine—sometimes, too, with not very pleasant results to the patient—day after day, and week after week, for the supposed purpose of "absorbing" something which cannot possibly be absorbed, such as a greatly thickened pleura or a densely fibroid lung of long duration, is at least not "scientific therapeutics." Of course this procedure may be of service as a "placebo," or to relieve a symptom, when judiciously carried out, but that is altogether another matter.

A very important matter in relation to the classes of cases I am now discussing is that, although any active treatment may be decidedly contra-indicated, the prevention of any further chest complication is of the greatest consequence, and more or less stringent measures towards this end have often to be carried out. Obviously, climate comes in here as a valuable therapeutic factor, but due care is necessary even under the most favourable climatic conditions. Moreover, the great advantages of "home treatment" must also be duly recognised in this connexion, the good effects of which may be very striking. I have already alluded to patients suffering from chest affections who are able and willing to remain indoors all the winter under comfortable conditions, and thus not only prolong their lives considerably, but often manage to have a by no means unenjoyable time. But they are not all so amenable to reason, and what one finds is that not a few indiv iduals, suffering, it may be, from even serious chest diseases, want to enjoy all the amusements and fun that are going on in the world, without any regard to the risks involved, and they expect us, in our professional capacity, to avert all the evils which their imprudence brings upon them.

From the point of view I am now discussing, in-patient hospital treatment becomes an inestimable boon, even in a "hospital for consumption," with all its supposed risks, and my personal observation and experience will bear ample and emphatic testimony in support of this statement. At the same time, in the light of modern researches and observations, I fully admit that it is our duty to take every possible precaution to prevent tuberculous infection; and it may be a question whether it is desirable to bring phthisical patients in whom the disease has been practically arrested and cured into too close contact with those who are suffering from the complaint in an active form.

The next point worthy of notice is that in the cases we have been considering, should any complication supervene, even if it be but a slight cold, it ought always to receive immediate attention. Neglect of this principle is accountable for much serious mischief.

3. I now proceed to say a few words about the treatment of combinations of diseases or morbid conditions of the chest in acute cases, as they come before us in practice, and for which we are expected to do something definite. Obviously it is impossible to lay down any distinct general rules, but every case must be studied individually, bearing in mind the recognised principles which usually guide us in dealing with the several acute chest affections. It is especially desirable in these cases to try to realise fully at the outset what conditions we have actually to treat and what we propose to do by our therapeutic measures. I think the general tendency is rather to be too active than the reverse, and it is well to lean to the side of discretion. A routine line of treatment directed only to one factor in an acute combined case, say pneumonia, is decidedly to be avoided. The supervention of acute on pronounced chronic conditions often gives us a very trying case to manage, and if the combination is not understood it will probably be a bad time for the patient; if nothing worse happens he is pretty sure to be subjected to a more energetic treatment than the circumstances demand. Of all the cases that harass the medical practitioner and make him feel his smallness and impotence I think there are none worse than those complicated acute inflammatory chest cases of rapid onset and progress, to which I referred in my previous lecture. Some of them are obviously hopeless almost from the first; in others we feel that we must make a fight for life, and there is no greater satisfaction than when, by sticking to our patient and encouraging others to do the same, we succeed, aided by intelligent, judicious, and devoted nursing, in bringing the conflict to a favourable issue, and, humanly speaking, save his life. Unquestionably the rational administration of medicinal agents becomes in these cases of the highest value, especially of those which affect the functions of the vital organs, or which assist or modify expectoration. I cannot now refer to other details of treatment, and will only say that it is in grave, acute chest conditions that we derive such timely help from active therapeutic measures intended for special purposes, more particularly abstraction of blood, either by venesection or local methods, or even by cardiocentesis,[1] free dry-cupping, inhalation of oxygen, artificial respiration, or subcutaneous injection of powerful drugs, such as ether, strychnine, or digitalin. How far the injection of antitoxins is going to be of service to us in the future in the treatment of formidable acute inflammatory diseases of the contents of the thorax remains to be seen, but so far as diphtheritic cases are concerned I can affirm that the results which have been achieved in my wards at University Hospital, under the active management of my late house physician, Mr. Bunch, are most satisfactory, and fully bear out the favourable reports from other quarters.

4. The actual treatment of chronic chest cases which come before us, presenting such a variety of morbid conditions, in every conceivable combination and not uncommonly highly complicated, is a problem that always requires thoughtful consideration, and often gives abundant scope for the application of sound therapeutic knowledge and skill, guided by discretion and judgment on the part of the individual practitioner. As I have already intimated, many cases of even pronounced chronic chest diseases do not require any active measures at all—at any rate, as a constant or regular practice; but in others we can do much, by the administration of suitable remedies or in other ways, to influence or control morbid processes, to relieve or help symptoms, or to affect temporary conditions or disturbances which so often form part of the history of these cases. Of course general or constitutional, as well as climatic treatment, and that directed to the digestive or other systems, is frequently of essential importance, and I must draw special attention to the great value, not uncommonly, of more or less prolonged rest in bed from time to time, particularly in cardiac cases. As regards the use of medicines, I think the tendency is to overdo things in this direction in chronic cases, even when they are needed, and I may observe that sometimes we find a condition present which distinctly contraindicates the use of a particular drug, or at any rate should make us very cautious in its administration—as, for example, extensive pericardial adhesion, which certainly is not favourable for the employment of digitalis and allied agents. It is interesting and important to note that if one has the opportunity of watching the progress of chronic chest cases of a combined nature, it will frequently be found that they present exacerbations of symptoms from time to time, which pass away under treatment, but in many of them a period comes when nothing further can be done, and the patient must inevitably succumb. The laity cannot understand this at all, and do not see why what has been accomplished before cannot be done again; and I must say that occasionally even a medical man does not quite realise the state of things under these circumstances, but expects the "consulting physician" to achieve impossible results.

5. I now come to the consideration of a definite principle in the treatment of combined chest cases of all kinds, be they sudden, acute, or chronic, as well as indeed in those of a simple nature, and one which I regard as of the greatest consequence. It is this: to be always on the look-out for, and prepared to deal more or less actively with, certain morbid conditions, often of a pronounced kind, which we can materially influence by treatment or even absolutely get rid of, but which, if allowed to continue, are sure to lead to serious results, either immediate or remote. This principle applies also to certain individual diseases of a grave nature, which may in not a few instances be greatly checked, or even entirely cured, by

[1] Brit. Med. Jour., Dec. 15th, 1894.

appropriate treatment. It opens up a wide range of subjects, and in individual cases it often gives us occasion for deep and anxious thought in determining what is best to be done for our patient's interests, while special difficulties may face us as to carrying out a method of treatment which we know is clearly indicated. There are some who, in relation to certain of the conditions to which I allude, are, I think, inclined to be too hasty or even rash in the employment of vigorous and heroic measures; but the general tendency is decidedly in the opposite direction, and one sometimes sees an exasperating "pottering" about cases which really call for very prompt and definite treatment.

Without any comment I can now only mention the chief conditions or diseases to which the preceding remarks refer—namely, fluid effusions in the serous cavities; pneumothorax and its effects or accompaniments; purulent accumulations of any kind, whether empyema, pyopericardium, or either of the several abscesses; excessive secretions and morbid products in the air-tubes or pulmonary vesicles, especially if of a purulent or fetid character, as well as materials formed in phthisical cavities, special care being taken as far as possible not to allow persistent accumulation of these fluids in the bases of the lungs; solid inflammatory products in the lungs, the remains of pneumonia or broncho-pneumonia, which even when very extensive and abundant, and of long standing, may sometimes be got rid of entirely by appropriate treatment, systematically and diligently carried out; syphilitic changes, often markedly benefited by specific remedies; aneurysm, which is in not a few instances remarkably amenable to treatment; cardiac thrombosis; and such exceptional diseases as hydatids or actinomycosis.

6. The treatment of temporary disorders of a more or less serious nature, occurring as complications of various diseases or combinations, whether acute or chronic, presents another aspect of the management of chest cases, which always demands thoughtful consideration, as well as often promptitude of action. Many of these disturbances yield readily to simple measures, such as rest, warmth, posture, and the use of old-fashioned and comparatively harmless remedies, such as "ammonia with ether." The obvious tendency nowadays, however, is to rush off to certain special drugs or methods of treatment, without at all considering the case which has actually to be dealt with, or making any attempt to understand the conditions present. I allude more particularly to the treatment of attacks of spasmodic asthma and angina pectoris. I have no hesitation in affirming that such attacks, or supposed attacks (for the disturbances called by these names are by no means always correctly so designated), are often regarded from too narrow and restricted a standpoint as regards the adoption of measures for their immediate relief, that different cases require to be treated in different ways, and that it is a serious mistake to fly to any one remedy as a routine practice. Further, we must never forget that by the repeated use of these remedies, which are usually powerful and dangerous, we may be doing positive mischief, and especially that we may be laying the foundation for their habitual employment by patients themselves on the slightest provocation, a practice the injurious results of which we so constantly meet with in these days, when all kinds of drugs and preparations in convenient and attractive forms for use can be so easily obtained. At the same time I fully recognise the remarkable effects which can be produced by certain agents which modern experimental pharmacology has provided for us, as well as their essential value in the treatment of the conditions of which I am now speaking, provided they are employed judiciously, and under the direct supervision of a medical man who knows what he is about. Nor must I forget to note here that some of the very active measures to which I have previously alluded may be urgently demanded in cases belonging to the present category, and that they may be immediately instrumental in averting threatened death.

7. The treatment of symptoms opens up most important questions in relation to combined morbid conditions of the chest, and calls for much consideration in a large number of instances. It is impossible for me now, however, to do more than offer a few general remarks on the point. When in an earlier part of this lecture I strongly condemned the mere symptomatic treatment of chest cases, of course I did not mean to imply that they should not receive due attention when required. As a matter of fact, they often need a good deal of consideration, and it is by no means easy to cope with them under many circumstances in which various thoracic changes exist together. But here comes in the essential importance of studying each symptom individually, in relation to the conditions present, before attempting to influence it. It frequently happens that we then find that little or nothing can be done for a particular symptom which is troubling the patient, and what we have got to do is to enforce the principle to which I have previously referred—namely, that he must learn to accommodate himself to his circumstances. This applies more especially to disturbances of respiration and cardiac action. On the contrary, it may be that there is some state of things within the chest which can at once be recognised as the cause of the disorder, and that treatment directed thereto will immediately relieve the symptom or symptoms thus produced, even when they are of a severe or grave character. To go on pouring in drugs for the relief of urgent dyspnœa and palpitation (so-called), obviously depending upon a large pleural effusion which demands instant removal, is certainly not rational treatment, and yet it is possible even in these enlightened days. Again, it is often not desirable to check a particular symptom, even when this can be done, such as cough, provided it serves some useful purpose, though it may at the same time perhaps be controlled and helped in various ways. One general rule, at any rate, should be followed in dealing with symptoms in combined chest cases, and that is not to give more medicine than is really needed, and to employ simple and harmless remedies as much as possible. I may draw attention to the great advantage to be derived in relation to thoracic symptoms not uncommonly from the adoption of treatment directed to some particular general condition or conditions, especially anæmia, emaciation, and obesity, though I think the last-mentioned is sometimes rather injudiciously attacked. Nor must I overlook the immense relief to be often obtained by getting rid without delay of certain abdominal accumulations which physically interfere with the diaphragm and thoracic contents, as well as of extensive subcutaneous dropsy. The beneficial effects which thus follow tapping for ascites, or relieving anasarca by operative measures of different kinds, have in my experience of a good many cases been most remarkable.

8. I now come to my last point bearing upon the treatment of combined chest cases, and that is to say a few words about special therapeutic methods. I need scarcely remind you that we are living in an age when, to say the least, there is no great respect paid to traditional therapeutics; and when active and energetic workers are on all hands trying to discover new systems, methods, or even remedies, which will enable us to cope more effectually and successfully with disease in its varied and complex forms. It behoves us, however, as a profession, to be somewhat cautious in our so-called "progress," and not to be too eager to adopt and practise supposed "cures," which a little consideration may show to have really no rational foundation. Such caution is especially necessary in relation to the treatment of diseases of the chest, and a comparatively recent experience gave us all round a lesson which it is to be hoped will not soon be forgotten.

The more prominent special methods of treatment at present in vogue in relation to chest affections may be summed up as follows: 1. Antiseptic treatment, practised in various ways, including intra-laryngeal injections, a method recently brought prominently before the profession by Dr. Colin Campbell. The use of antiseptics may unquestionably be of the greatest value in many combined chest cases, and not merely in those of a phthisical nature. 2. Hypodermic injections of different kinds, which may be rational enough in connexion with certain exceptional conditions, but on the whole, as at present recommended and carried out, rather indicate a want of any actual clinical or even pathological knowledge of the grave diseases with which they profess to deal, and sometimes border on the absurd. 3. Climatic treatment, to which is added not uncommonly some particular "cure." About this treatment—which, of course, is the essential requirement in a large number of instances—I will only say that I find that the "resident doctors" in climatic "health resorts" do not at all like a very advanced or complicated chest case of any kind to deal with, but almost invariably, and for obvious reasons, give their opinion that their particular climate will not be suitable for the patient, and that he had better go elsewhere or stay at home. 4. The use of "respiratory gymnastics," often of the greatest service for various purposes when properly carried out. 5. Methods connected with the employment of "condensed or rarified air," especially for emphysematous cases. 6. Treatment directed to the

nasal cavities and the throat, which in appropriate cases is of unquestionable advantage. 7. Mechanical or physical methods practised in the treatment of cardiac affections, such as massage, graduated mountain climbing, cycling, or special exercises. With regard to these methods, no doubt they are most beneficial in suitable cases, as I can testify, but each one requires very careful consideration before it is treated in any such way.

The preceding remarks have been intended merely to bring to your remembrance, without attempting to discuss them, certain methods of treatment, one or other of which might appropriately be called for in the management of more or less complicated chest conditions. Their individual application must be left to the matured judgment, practical experience, enlightened common sense, and honesty of purpose of each member of the profession to which we have the privilege and honour to belong.

And now, Mr. President and gentlemen, my task is ended. I am but too conscious of the imperfect manner in which it has been performed. One of the greatest and most trying problems which the medical profession has to face at the present day is how to diminish by preventive measures the enormous number of cases of chest disease which overwhelm us on all sides, and how most effectually to cope with these diseases, in their many forms and combinations, so as to restore health, to prolong life, or to lessen human suffering, according to the circumstances and conditions with which we have to deal. I can honestly say that my object in these lectures has been to contribute something, however insignificant, to the attainment of these ends. Increasing experience has made me feel more and more strongly that before we can succeed in our aims in anything like a satisfactory degree we must not be content with a general, and often vague or theoretical, conception of the maladies against which we have to contend, or of their treatment; and I venture further to suggest, with all deference and respect, that we cannot consent to be guided in this matter solely by the teaching of modern experimental pathology and pharmacology. We are bound to realise things as they actually exist in living patients; and it is from this point of view that I have thought it might be of some positive advantage to bring the combinations of morbid conditions of the chest prominently before the profession, at the same time trying to arrange them under some kind of order, to take a comprehensive survey of their clinical investigation, and to glance at the more important principles bearing upon their practical management. On some points I have felt it my duty to speak out with no uncertain sound, but I trust that I have said nothing which can justly give offence to anyone. It now only remains for me most cordially to thank the Council of the Medical Society of London for the great honour they conferred upon me in electing me Lettsomian Lecturer, and to express my deep obligation to you, Mr. President, and to those other gentlemen who have sustained me by their presence and have so patiently listened to my tedious discourses.

NEUROLOGICAL FRAGMENTS.

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(*Continued from p. 396.*)

No. XV.

SUPERIOR AND SUBORDINATE CENTRES OF THE LOWEST LEVEL.

IN a future note I shall attempt an analysis of a sub-malady of tabes, the Laryngeal Crisis. As a preliminary to doing so, and for other reasons, I will speak further on the evolutionary constitution of the Lowest Level. There are, I submit, in this level, centres of higher rank than those of what I called (No. XIV.) the homologous series (anterior and posterior horns and motor and sensory nuclei of cranial nerves); these centres of higher rank I name Superior Centres of the Level. Certainly the respiratory centre of physiologists (medulla region of the level), to take that case, is not homologous with an anterior horn; it is a superior centre of the lowest level; it represents the respiratory apparatus, or, as I prefer to say, Thoracic Cage (musculature of the larynx, diaphragm, and chest-walls), not directly, but indirectly; that is, it represents different parts of the thoracic cage *by intermediation* of different motor centres of the homologous series, those which I name, from the parts of the cage they supply, laryngeal, phrenic, and costal centres; these three are motor centres (of the homologous series) subordinate to the medulla respiratory centre. Properly speaking, the respiratory centre *re-represents* the muscles of the thoracic cage. (Further on in this note I shall make a distinction between different parts of what I call subordinate centres.)

The respiratory centre and its three subordinate centres, with their interconnecting fibres (companion sensory centres and sensory fibres understood)[1] are intrinsic elements of the lowest level. Fibres connecting the three subordinate motor centres with the musculatures of different parts of the thoracic cage, are extrinsic elements of the level, fibres extrinsic downwards. There are fibres connecting the respiratory centre with higher levels; they also are extrinsic of the level, extrinsic upwards. These and certain other fibres differently extrinsic upwards will be spoken of again after a short preliminary.

I prefer the term "thoracic cage" to that of "respiratory apparatus" because there are other than respiratory services of the so-called respiratory apparatus—a question begging epithet. There is not only an organic service ("menial work") of the cage (respiration proper), but it is engaged in non-respiratory, animal services. When a "man draws in his breath" when told to do so (so-called "deep inspiration"), or when he fixes the cage in a high, so-called "inspiratory" attitude whilst lifting a heavy weight, there is a non-respiratory, an animal, service of the cage—one of cerebral (highest level) initiation. I submit that in these animal services there is engagement of motor fibres (of the pyramidal tract) from the highest, through the middle, level; and that in their further course these fibres, evading the medulla respiratory centre, pass direct to the laryngeal, phrenic and costal centres of the lowest level.[2] It must be borne in mind that the motion of the cage when a man draws in his breath when told (so-called "deep inspiration") is of a different kind, obviously in the adult male, from that in ordinary breathing (respiration proper). When an adult male[3] breathes (respiration proper) the motion of the cage is diaphragmatic first and most, there being a sequent slighter costal motion. But when he draws in his breath when told to do so, the diaphragm acts little, there may be recession of the epigastrium; the chief motion is costal. The latter, an animal duty, is a "voluntary movement," and, as the word "voluntary" implies, is one

[1] I almost ignore all sensory and certain inhibitory elements of the respiratory nervous system of the lowest level in the above exposition; they, especially vagal fibres, including, of course, fibres of the superior laryngeal nerve, are to be tacitly taken into account.

[2] Marckwald (The Movements of Respiration, translated by Mr. Thomas Haig, p. 120) thinks it probable that fibres of the phrenic nerves carry stimulations direct from a motor centre of the surface of the brain, in their passage downwards evading the (medulla) respiratory centres. It may be that these fibres come from cerebral (higher level) *true respiratory* centres, direct to what I call subordinate centres of the lowest level. We must be very careful how we draw clinical inferences from Marckwald's statement, supposing it to be, as he thinks, probable. In some cases of death in coma (cerebral lesion) the respiration is costal and not at all diaphragmatic. (Breathing becomes more costal in anybody when he is excited or when his respiration is rendered difficult by disease.) In the case of coma alluded to the epigastrium may sink whilst the chest rises in inspiration. Such a condition may be, and I believe has been, taken for paralysis of the diaphragm as a direct consequence of the cerebral lesion. And I believe that this condition in dying in some cases of peripheral neuritis has been supposed to indicate paralysis of the diaphragm from lesion of the phrenic nerves. Another explanation of the condition is possible. It may be owing, I submit, to increased volume of the lungs (posterior congestion and anterior "vicarious emphysema") whereby the diaphragm is pushed down. (Compare breathing in certain cases of true emphysema [*volumen* pulmonum *auctum*] in which there is recession of the epigastrium in inspiration.) Here is, however, I admit, a difficult question, for in some cases of coma from cerebral lesions, even in women, the chest sinks whilst the abdomen rises in inspiration. I have watched the respiratory motions in but few cases of the coma of chloroform, both in men and women; in two or three cases I observed the chest sank whilst the abdomen rose in inspiration. It may be that chloroform poisons the costal centres (lateral horns?) before it poisons the phrenic centres of the lowest level.

[3] In the text I speak of the two uses, organic and animal, of the thoracic cage in adult males. Walshe (Diseases of the Lungs, fourth edition, p. 36) wrote: "The adult male seems to the eye to breathe with the abdomen and the lower ribs, from about the tenth to the sixth; the adult female with the upper third of the chest alone." So much for respiration proper. Now as to "forced breathing" (voluntary expansion of the cage, as I call it). Walshe writes (op. cit.): "..... The sexual differences disappear in *forced* breathing; in both sexes the pectoral movement is, out of all proportion, greater than the abdominal, and even in the male the expansile action, if abrupt, commences superiorly."

of cerebral (as I should put it, highest level) initiation; I shall call it "voluntary expansion" of the cage (costal part). The former is a lowest level movement, one initiated by a superior, the respiratory, centre of that lowest level; I shall continue to speak of it as inspiration proper.

I have more to say on the nervous mechanism of the "voluntary," non-respiratory, motion of expanding the cage when told. A further speculation is that the respiratory, medulla, centre in that and other animal services of the cage is inhibited by fibres from the highest level; I suppose that it is so strongly inhibited in such an animal duty as that of lifting a heavy weight, that respiration proper is stopped in order that the laryngeal, phrenic, and costal centres—the respiratory centre ceasing to act on them—may directly serve the highest level. It is not, to speak roughly, that the highest level succeeds in overpowering the influence of the respiratory centre on the three centres mentioned, but that the respiratory centre is compelled to surrender them to the sole activity of the highest level. A man lifting a heavy weight cannot keep his cage fixed for long; when the blood becomes too venous, the respiratory centre is so strongly stimulated that it regains its sway over the subordinate centres in spite of the aforesaid cerebral (higher level) inhibition. The two sets of fibres engaged in the animal, non-respiratory, duty of the cage—motor from the highest level direct to the three subordinate centres, and inhibitory from the highest level direct to the superior, respiratory centre,—are those alluded to at the close of the second paragraph of this note; they are fibres of the level extrinsic upwards. I believe that there is another kind, or perhaps I should say, degree, of higher level inhibition of the respiratory centre.

Besides the *occasional*, and often strong *inhibition* of the respiratory centre during "voluntary," non-respiratory services of the cage, there is, I suppose, a *continuous* (I do not mean unvarying) inhibition of it by the higher levels *as it serves, by sub-agency of the subordinate centres, in the "menial work" of respiration proper*. I will call this the second kind of higher-level inhibition. I think evidence of slight diminution of the second kind of higher level inhibitory influence upon the medulla respiratory centre is supplied by some cases of hemiplegia, right and left, from lesion in one half of the brain (internal capsule). These cases illustrate also what has been said on the difference of the two, the "voluntary" and the respiratory, services of the cage.

In some cases of hemiplegia, recent and old—I will suppose *left* in illustration—the motion of the left upper chest is, in a very slight degree, of greater amplitude in inspiration proper than that of the right, whilst the motion of the left upper chest is in a very slight degree of less amplitude than that of the right when the patient expands his cage when told ("voluntary movement"). I will now consider the implications of these differences.

What I have so far spoken of as *the* respiratory centre is really double, in two halves; there are twin medulla respiratory centres. Applying the principle of Broadbent's hypothesis, on representation of bilaterally acting parts of the two sides of the body in each half of the brain, to the cases of, say, left hemiplegia now under remark, we could only expect there to be *very slightly greater* amplitude of inspiration on the left side consequent on loss of inhibition from the right half of the brain on but one, the left, of the twin, cross-connected, respiratory centres; and still having regard to Broadbent's hypothesis, we could only expect there to be very slight diminution of motion of the left side of the cage from loss of "voluntary" influence from a lesion in the right half of the brain.

Recently I have, with the assistance of Dr. W. H. Stoddart, investigated twenty-eight cases of old hemiplegia in this regard. Most of the observations were made by Dr. Stoddart. In seven cases of left, and twelve of right hemiplegia, the upper chest on the paralysed side moved very slightly more than on the non-paralysed side in inspiration proper, and in "voluntary" expansion, moved less on the paralysed side, than on the non-paralysed side. The wording of the foregoing implies that there appear to be exceptions to what I believe is the rule; there is the obvious complication of old thoracic disease in some cases.

What has been said on the respiratory motion of the cage in some cases of hemiplegia bears on Cheyne-Stokes respiration. In very grave cerebral lesions with Cheyne-Stokes respiration, the continuous which I called the second kind of higher level inhibition by both halves of the brain is probably taken off both respiratory centres. This double taking off will, again having regard to the principle of Broadbent's hypothesis, be far more than the double of taking off, as in the cases of hemiplegia mentioned in the foregoing, of inhibition from one of the two respiratory centres by lesion of one, the opposite, half of the brain. The twin respiratory centres bereft of higher level inhibitory influence will still be under vagal inhibitory influence, except perhaps in cases where the lungs have become gorged.[4] The respiratory centres in cases of Cheyne-Stokes' respiration due to a grave cerebral lesson will be left more than is normal to their own inherent automatism and will presumably be more susceptible to the state of the blood, and perhaps to the influence of the vagi. There seems to me to be in Cheyne-Stokes respiration from cerebral lesions something analogous to hippus. When in patients subject to this ocular peculiarity, light goes into the eye it stimulates the retina; therefrom, indirectly of course, the pupil contracts; the pupil being contracted, less light enters to stimulate the retina and the pupil dilates; and so on again and again. In the case of Cheyne-Stokes respiration I am considering the supposition is that higher level inhibition is taken off *both* medulla respiratory centres; whereupon, respiration proper being greater, apnœa occurs and the respiratory movements cease. At length from this cessation the blood becomes super-venous, and thus the respiratory centres are stimulated and there ensues a number of respiratory movements of gradually increasing amplitude; wherefrom, the super-venosity again ceasing, the respirations diminish gradually in number and amplitude and there is again the pause; once more from this cessation of respiratory movements super-venosis occurs, and then once more there is stimulation of the respiratory centres, and another series of respiratory movements.

For a clearer understanding of the differences of the two kinds of motion, animal and organic, of the thoracic cage, I must speak more definitely than I did by using the morphological terms anterior horns and nuclei of motor cranial nerves, or by using the term subordinate centres. It is not likely that the elements of what I called the subordinate centres which are acted on by higher levels in the "voluntary" (animal) service of expanding the cage when told and during "effort," are the same elements as those which are acted on by the respiratory (medulla) centre in the organic service of the cage (respiration proper). The former elements are probably those of the cell column, whilst the latter (for the costal centres) are, considering Gaskell's researches, probably the lateral horns.[5] So then, amending former statements, we say that during "voluntary" expansion of the cage, the respiratory centre, being inhibited, ceases to act on the lateral horns for the direct supply of the muscles of the cage and the higher levels then act on the cell column, or some part of it, also for the direct supply of the muscles of the cage. If this be so, we see the importance of distinguishing between action of muscles and movements; the intercostal *muscles* serve in two different *movements*.

More generally and with regard to the organs of the digestive, circulatory, and respiratory[6] systems, the supposition is that they are in adult man efficiently, I do not say solely, represented by the lowest level, as they do the "menial work" (organic service) of digesting food, circulating blood, and aerating blood. I imagine that there are superior and subordinate centres of the lowest level for the "menial work" of each of these systems, but I refrain from

[4] McKendrick (Text-book of Physiology, "Special Physiology," p. 356) writes: "Division of the vagi at once causes periodic breathing to disappear [in animals when the medulla has been divided above the respiratory centres], and in its place there are irregular respiratory spasms. It is clear, therefore, that periodic breathing occurs when the upper nervous tracts are inactive and when in these circumstances the vagi convey impressions to the respiratory centre. Hence it is that the Cheyne-Stokes phenomenon appears when the higher nervous centres are totally or partially inactive, or, at all events, when the upper brain tracts are not conveying impressions downwards."

[5] Since I wrote the above I have met with what I think is clinical confirmation of the hypothesis as to the difference between the two (the "voluntary" and the organic) services of the thoracic cage, or rather of the costal part of it. I refer to the case mentioned in No. 12, THE LANCET, Dec. 22nd, 1894, a case in which, with loss of the respiratory movement of the intercostal muscles, good "voluntary" movement by the same muscles remained possible.

[6] I neglect the animal heat system in this note. There is, I think, nothing absurd in suggesting, as I now do, that at least some of those thermic centres, which are supposed to exist in the brain, may be centres of the lowest level; for lowest level is an anatomico-physiological, not a morphological, expression. I am not speaking of the *sensation heat*; that, like all other sensations, no doubt arises concomitantly with activities of the highest cerebral centres. Thermogenesis is a part of physiological physics. It does not follow that any cerebral centres any way concerned with animal heat, the thing physical, are centres during the activities of which the *sensation* heat arises.

giving details of the speculation on this matter in these cases. One general hypothesis is that as the organs of the three systems do that "menial work," they are very little positively (that is motorily), but much negatively (that is inhibitorily), represented (properly re-represented) in the higher levels; I speak, in this regard, of adult man.

With regard to the positive representation of the respiratory apparatus (which I call the thoracic cage) in the higher levels (Rolandic cortex), Horsley and Semon have written much to the same effect with regard to its organic ("menial") and animal services, or those two different services of a part of it (larynx). Some of the results of their experiments are, I think, in harmony with certain doctrines to be presently adverted to put forward by Herbert Spencer. Horsley and Semon write,[7] speaking of the vocal cords: "We have seen that the first of these functions, phonatory adduction [what Semon call 'purposive' or 'volitional'] is represented most completely in the cortex the higher we ascend in the animal scale, and the more completely as the cortex is developed in the life of the individual, i.e., by age, while, *pari passu*, the function of respiration, although present in a minor degree as evidenced by acceleration, is least represented where phonation is most completely developed. ..... *Respiration is represented in the higher animals only as acceleration and that above and rather in front of the focus of phonation.*" (These words are not in italics in the original.) Semon and Horsley[8] write: "Of all animals experimented on by us, the cat appears to possess the greatest development, the monkey the least, of respiratory representation in the cortex, since in the former animal alone have we found an actual centre for genuine abduction [of the vocal cords] to exist, close to the border of the olfactory (rhinal) sulcus. ..... A similar preponderance of cortical representation of respiration, we have found in young animals of different species."

Now as to negative representation (inhibition) of the respiratory centres by the higher levels. I cannot say that there is experimental evidence to show that, as the higher levels from lower to higher mammals, and from young to grown-up animals, come to have less to do with the direction of organic operations these levels come to have more suspensive, inhibitory, power over those operations. I, however, submit the following extract from a very valuable paper[9] by W. G. Spencer, *The Effect produced upon Respiration by Faradic Excitation of the Cerebrum in the Monkey, Dog, Cat and Rabbit.* Mr. W. G. Spencer writes, "*An Increased Action of the Respiration in the Monkey*": "I have been forced to distinguish the monkey from the rabbit, cat and dog, because in it an *increased action of the respiration is so much less marked.* There appears to be no *fundamental* difference, for I have obtained the same reactions 'acceleration,' 'over-inspiratory clonus' and 'over-inspiratory tonus,' at the points corresponding to those of the other animals, but only to a much smaller degree. The monkey reacts like the other three species do when [they are] very exhausted. I have not yet succeeded in artificially producing a greater excitability of the monkey's brain so as to obtain marked increased action of the respiration. The result of such attempts has been to excite irregularity of the rhythm and general convulsions. This lessened representation of the other phenomena, or the relatively greater sensitiveness to the effects of anæsthesia on the part of the monkey, allows *slowing and arrest* to be obtained all the more readily, and the localisation of the points of representation to be more easily recognised, since the effect is not so liable to be complicated by a simultaneous calling forth of increased action." (No italics in original.)

The wording of the foregoing (I mean what I have written in this note on the representation of the digestive, circulatory and respiratory systems) implies—at any rate it is meant to imply—that the organs of the three systems *are very much positively represented in the highest level as they are concerned in non-menial work*—that they are very much represented in the anatomical substrata of consciousness. I have already spoken of this with regard to the thoracic cage, have implied that it *is* largely represented positively in the highest level for "voluntary," animal, duties. Plainly the cage is engaged during emotions. I submit that its unusual engagement during strong emotion, the physical process being cerebrally initiated, is not a true respiratory service; at any rate the "menial work" of the cage, respiration proper, goes on badly so far as emotion is concerned. To take an extreme case, artificially limiting the illustration; it is scarcely likely that the heart is much, if at all, positively represented in the highest centres as it does the "menial work" of circulating the blood. Yet, as popular phrases ("hard-hearted," "kind-hearted," &c.) imply, it is no doubt represented for other purposes (re-represented) in the highest cerebral centres; obviously it must be represented in the anatomical substrata of emotions; but during great emotion, plainly during great fear, the heart serves badly in "the menial work" of circulating the blood, that is in its character as a blood-pump.

An hypothesis implied by what has been said in this note is that the lowest level is, for organic duties ("menial work"), by itself very efficient, and that it is *for those duties* considerably independent of the motor, directive, influence of the higher levels, although much under their negative (inhibitory) influence. Another general doctrine is that the centres of the lowest level which serve in organic ("industrial") duties can be compelled by higher levels to suspend those duties in order that the higher levels may act on animal centres of the level in "voluntary" operations. All this seems to me to be but an application of Herbert Spencer's doctrines on analogies between an individual organism and a social organism, as the use in a part of the foregoing of the word "industrial" is meant to signify.

I suppose that there are other superior centres of the lowest level, some in regions of it lower than the medulla region; for example, there are probably superior centres for the bladder and rectum in the lumbar region of the level, with centres subordinate to them in its sacral region.

I imagine that the corpora quadrigemina are superior centres of the lowest level; that they serve not to co-ordinate the retinæ by the optic nerves and tracts with ocular muscles for the estimation of distance, at least of objects out of reach (that is as the ocular movements symbolise so much locomotion), and not as they co-ordinate locomotor movements, but that they serve in co-ordinating *both* these co-ordinations; or to use a Spencerian term, that they, like the respiratory centres, are centres of Compound Co-ordination.

[7] Transactions of the Philosophical Society, 1890, B., p. 209.
[8] On the Relations of the Larynx to the Motor Nervous System, Deutsche Medicinische Wochenschrift, 1890, No. 31.
[9] Transactions of the Royal Society, vol. 185 (1894), B

MYXŒDEMA AND ITS RELATION TO GRAVES' DISEASE.[1]

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THE disease we are about to consider is comparatively rare. Personally I have had the good fortune to recognise six cases in the last ten years, or an average of three-fifths of a case a year, a ratio which you will admit is not large. Prior to 1870 the disease was practically unrecognised in adults, while in children it was called "sporadic" or "endemic" cretinism, and was looked upon simply as a peculiar form of idiocy. In its so-called endemic form it was known to exist in many Alpine villages, and I have a vivid recollection of the ugly little imps I met with in a certain village when on a walking tour in the Swiss Alps in 1865.

Historical summary.—In 1873 Sir W. Gull read a paper before the Clinical Society of London on a Cretinoid State Supervening in Adult Life in Women. In 1877 Dr. Ord presented a communication to the Medical and Chirurgical Society on Myxœdema. These two papers detailed cases and described diseases which were beyond doubt identical. To Dr. Ord belongs the credit of having discovered that the essential feature of the disease was a mucin-yielding œdema, and that the thyroid gland was in all cases either atrophied or cirrhosed. In 1881 Charcot described the result of his clinical observations, and named the disease cachexie pachydermique. In 1882 M. Reverdin drew attention to the symptoms following extirpation of the thyroid gland, and resembling those of myxœdema. In April, 1883, Professor Kocher read a paper before a congress of German surgeons, describing the symptoms he found to follow the total extirpation of the thyroid gland, and which he described under the term of "cachexia strumipriva." Dr Felix Semon, in November, 1883, pointed out the resemblance of the symptoms described by Kocher to those of myxœdema

[1] A paper read before the West Herts Medical Society.

observed in England; and in December, 1883, a committee of the Clinical Society of London was appointed to investigate the phenomena of the disease. From their report, published in 1888, the above facts have been culled. Soon after the appointment of the committee, Mr. Victor Horsley commenced a series of experiments on monkeys, and succeeded in demonstrating that loss of function of the thyroid gland produced all the symptoms known as myxœdema and cachexia strumipriva.

Characteristic symptoms.—1. The most obvious of these is a disfiguring œdema of general distribution over the body, and peculiar in that it does not pit on pressure. 2. There are slowness and thickness of speech, a tottering gait, a peculiar pallor of the skin, and fetor of the breath. 3. To the touch the skin feels cold, hard, and leathery—altogether unlike that of the normal surface. 4. The hair becomes dry, fluffy, and scanty almost to baldness; this applies to the pubes and other parts, as well as to the scalp. 5. The patient, whose temperature is generally subnormal, always feels cold, and will gravitate to a fire in the hottest weather. 6. The bulk and weight are always increased, often to a great extent. 7. Though the specific gravity of the urine is frequently low there is rarely any albumen present, except in those cases in which it is a symptom of concurrent disease. 8. The thyroid gland is small and hard, or not to be felt. 9. Histologically the wasted gland is found to consist of a dense fibrous stroma, with scarce a trace of normal gland tissue left. To my mind, however, the interest in this disease does not centre alone in its peculiar features, but involves the broader consideration of the relation which it bears to another equally uncommon disease—viz., Graves' disease, or exophthalmic goitre. The two following cases will illustrate this point.

CASE 1.—This patient was at one time in my service as nurse to my children. When she was thirty-six years of age she noticed a swelling of the thyroid gland. She had previously suffered from a feeling of fulness in the throat, accompanied by palpitation and proptosis. For these symptoms she was under treatment for two years, at the end of which time they disappeared. She, however, never felt well, and very soon fell into a state of health which was worse than the former. She noticed that her tongue became too large for her mouth, which made her speech slow and indistinct, also that she had always a bad taste in her mouth in the morning. Her urine became scanty and pale, and her periods, which formerly recurred at intervals of three weeks, were often absent for six weeks, and the loss was much diminished. Her hair became fluffy and fell out. Her gait became so uncertain that she had to crawl upstairs on her hands and knees. Sensation was impaired, the extremities were numb, and she was oppressed by a feeling of weight. The skin felt dry and leathery, whereas it had formerly been unduly moist. She slept badly and was always cold, and during the winter of 1891–92 she suffered so much from this cause that she could not go out, but sat shivering over the fire all day. Her symptoms were attributed at a London hospital to myxœdema, and she was treated by tonics and diuretics. Oddly enough, she recovered to such an extent as to be able to resume her household duties.

In the second case the connexion between Graves' disease and myxœdema was so obvious that I was led to a closer study of their pathology and to the conclusion that their relation in this instance was by no means accidental. That some such relation should exist seemed to me as logical a sequence as that atrophy should follow upon congestion and cirrhosis of the liver. As in the liver, so in the thyroid, chronic hyperæmia leads to the formation of plastic fibrous tissue, which, if the patient lives long enough, shrinks, crushing and destroying the delicate cells contained in its meshes, until in the end he is left with a more or less useless mass of fibrous tissue in the place of an active gland.

CASE 2.—I first saw this patient, then aged eighteen and a half years, at the end of 1889. I found her the subject of marked Graves' disease. I subsequently learned that she had "gone the rounds of the consultants," both regular and irregular, and had tried everything from arsenic to "blue electricity!" (Mattei.) She gave the following history. At ten years of age she "had a shock" from falling into a pond. Shortly afterwards she had a severe fright, owing to her having accidentally set fire to some drapery. From this date her health became impaired and she suffered from palpitation, fulness of the throat, and painful prominence of the eyeballs. A year later she was in a carriage accident and became worse. Early in 1890 she contracted measles and her temperature went up to 105° F. The attack was very severe, and the pigmentation left by the rash lasted for some months. From the date of her convalescence from measles the symptoms of Graves' disease became modified. In the intervals of my attendances I saw her frequently as a friend, and she was under my observation from first to last—nearly three years. At the end of 1891 I was asked to examine her carefully, and to give a definite opinion as to her condition, her symptoms having gradually undergone a complete change. As a result of my examination I came to the conclusion that she was suffering from myxœdema—a fact which I had suspected some months previously. Owing to the gravity of her condition I took her to Dr. Ord, who agreed that the case was one of myxœdema in a very early stage of the disease. The notes taken of the case are too copious to condense within the limits of this paper. They, however, form the basis of my remarks in the following commentary. Briefly, her symptoms were those of a disease in every way the opposite to that for which she first came under my care. In fact, she had passed from Graves' disease to myxœdema—from a condition of general exaltation with thyroid hypertrophy to one of depression with atrophy of that gland—a striking and unique illustration of the deterioration of an overstimulated organism. Those who have carefully watched a case of Graves' disease must have observed that the condition of the whole vascular system is one of congestion. Every organ is over-full of blood, and the heart works like an express engine in keeping up the high pressure. The arterial tension is, however, not so great as one would expect it to be, and the force of the cardiac contractions is less marked in the radials than in the carotids. This we may conceive to be due to two causes: (1) vaso-motor paresis, which allows of the rapid absorption of increased force; and (2) a ventricular systole of unequal tone, forcible, and quick at the commencement of the contraction, but rapidly becoming weaker—in fact, the jerky action of an irritated and jaded muscle. From this it follows that the vessels and organs nearest the heart would feel the effect of the increased force sooner than the distal vessels, just as in certain cases of valvular disease only one beat in two is felt at the wrist, while every pulsation can be counted in the carotids. Those organs, consequently, which show the most marked evidence of excessive blood-supply are the thyroid, the eyes, and the brain. In the thyroid it can be felt, in the eyes it can be seen, and in the brain it is evidenced by the excitability, the passion, and the rapid cerebration and speech. (It is difficult to understand why it was ever considered necessary to seek the aid of the insignificant muscular fibres of the orbital membrane to explain the proptosis when the abnormal tension of the eyeball, and the congested scleral and episcleral vessels only too plainly indicate the cause.) The frequent pulse necessitates an increased rate of respiration and the temperature is high, nearly always above normal. The skin is hot and moist and the mouth is full of saliva, evidence of glandular activity the result of hyperæmia. Such briefly are some of the salient features of Graves' disease. Now in myxœdema the tables are completely turned. The pulse becomes slow and feeble; the thyroid becomes small and hard and is barely perceptible. The eyeballs recede to a certain extent, and the palpebral skin is thrown into heavy folds. The integument of the body becomes cold, dry, and leathery, and the extremities feel numb. The mouth, too, becomes dry and the saliva sticky. Cerebration is slow and speech sluggish. The appetite, previously voracious, is lost; constipation follows and the pill which once acted copiously now barely takes effect and soon has to be increased in strength. The temperature falls (even below 95° F. in the morning) and rarely, except during the catamenial period, reaches the normal level. The heart sounds are weak and soft and the impulse is lost, though the basic murmur persists. The patient is no longer restlessly energetic, but becomes alternately peevish and apathetic and crouches over the fire in the vain endeavour to keep warm. The catamenia, previously regular and often profuse, become scanty and are absent for months; the hair becomes fluffy, dry, and brittle, and falls out "by the handful." Such is the contrast between the two diseases as exemplified in this case, and I venture to believe that the relation which here evidently existed between them will be found to be more common the more the subject is studied and the more carefully the previous history of each case of myxœdema is investigated.

As to the origin of Graves' disease it is barely profitable to speculate. That it is due to a lesion of the vaso-motor area in the bulb is very probable, and that the thyroid

enlargement is merely a consequence is almost certain. The changes in the cervical ganglia of the sympathetic are also probably secondary. What it is that produces the central lesion still remains in the region of hypothesis. Someone may some day discover a bacillus. At present severe mental strain or nerve shock is credited with its production. As bearing upon the title of this paper and the object I have had in writing it, I would point to the significant fact that the ratio of males to females affected is almost identical in both Graves' disease and myxœdema—that is, about one to six. Of six cases of myxœdema which I have seen since 1884 three had histories of previous thyroid enlargement and concomitant symptoms. The first two I have just related; of the third I have no notes, and it is consequently valueless. In the remaining cases no history of exophthalmic goitre was obtained. However, from the facts already mentioned and from others which the compass of this paper will not permit me to discuss, from the sequence of events in the two cases detailed, and from the study of the pathology and histology of both diseases, I am led to believe that myxœdema is certainly a possible, and may even be a probable result of antecedent Graves' disease.

Treatment.—My experience is limited to five of the six cases just alluded to. The first case recovered under tonic and diuretic treatment alone, possibly because some part of the gland escaped destruction and, subsequently becoming hypertrophied, sufficed for the needs of the body. The most recent case is still under treatment with the "extract," and already shows some improvement. In three of the cases the result of the treatment by thyroid extract savours of the miraculous. Snatched from a life of unloveliness and suffering, the patients have been restored to health, beauty, and vigour. Surely their gratitude is due to those members of our profession whose acumen led them to the discovery of a remedy the therapeutic value of which is as yet but very imperfectly gauged, and which has opened up a field of research full of brilliant promise for the future.

Great Stanmore, Middlesex.

CASE OF

LARGE POLYPOID GROWTH IN THE UTERUS BECOMING SARCOMATOUS;

UTERUS AND GROWTH REMOVED BY COMBINED ABDOMINAL AND VAGINAL HYSTERECTOMY; RECOVERY.

BY FRED. BOWREMAN JESSETT, F.R.C.S. ENG.,

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THERE are few cases that come under the notice of a gynæcologist which cause him more anxiety than cases of fibro-myoma of the uterus, and when these tumours become sarcomatous, as they occasionally do, the difficulty in dealing with them is very much increased; in fact, the only hope of eradicating the disease from the system rests on the total removal of the organ with its disease. Such removal is always attended by considerable difficulty. If the uterus is not much enlarged they may be removed per vaginam; but if the growths have attained considerable size this proceeding is impossible, and it becomes necessary to consider what is the best method of removing the organ—whether to remove it through the abdomen by Freund's operation or to adopt Martin's operation of combined vaginal and abdominal operation, and finally, the uterus with its growth being removed, to consider what is the best plan to adopt in dealing with the peritoneum. The following case is one, I think, of very considerable interest and importance in connexion with these questions.

On April, 9th, 1894, I was asked by Mr. J. R. Walker of Hamilton-terrace to see with him a widow fifty-seven years of age. She had three children, the youngest being about thirty years of age. She had enjoyed good health until about three or four years ago, when she had some violent floodings, for which her medical man, at that time, took her to see Dr. Braxton Hicks. She has had a great deal of worry and anxiety. There is no history of cancer in the family. In answer to a letter I wrote to Dr. Braxton Hicks as to her condition when he saw her, he most courteously sent me the following particulars: "About two years ago I saw the patient in question. She had then a sloughing fibroid; the greater portion of the mass came away, but some remained. She gradually improved in health and got about. I saw her about four months ago. She was then without offensive discharge; there was leucorrhœa, and the uterine tumour was about the size it was when I saw her before. There was nothing then to indicate change of growth or operation." Since then the patient had complained of pain in the back; she could not walk without a good deal of distress. She had had attacks of bleeding and some badly smelling discharge. The jolting of cabs and omnibuses caused her great pain. She had had two attacks of intestinal obstruction, one a very severe attack. By abdominal examination there was discovered to be a well-marked tumour situated somewhat deeply in the pelvis; the parietes were flaccid and admitted of ready examination. The patient was well nourished, although she had lost flesh of late. The tumour appeared to extend somewhat along the left broad ligament. A boss was also felt about the size of a Tangerine orange apparently in the right broad ligament. Per vaginam the os felt healthy; there was no erosion or ulceration. The uterus was readily movable; the tumour appeared to be in the body of the uterus; there was a good deal of thickening of the left broad ligament. A sanious, blood-stained, badly smelling discharge was seen escaping from the os; this discharge was seropurulent in character and caused a good deal of irritation of the labia. The sound passed readily for four inches and a half; slight bleeding followed its introduction. Bi-manually the uterus presented a soft, doughy sensation; it was freely movable excepting on the left side, where it seemed to be slightly held down. The diagnosis arrived at was that there had been a fibroid growth in the uterus; but taking into account the age, the offensive discharge with hæmorrhage, and the fact that it had been growing of late, I was of opinion that we had to deal with a growth of a sarcomatous character and advised early removal, which, after consideration, was agreed to by the patient and her friends. On April 19th, with the assistance of Mr. Walker, Dr. Purcell, and Mr. West, Dr. Dudley Buxton administering the anæsthetic, I performed the following operation. From the size of the tumour it was recognised that considerable difficulty would be experienced in removing the uterus with its growth per vaginam, although I hoped to be able to do so. I was, therefore, prepared to open the abdomen in case such difficulty was experienced, which proved to be the case. For three days preceding the operation the vagina had been syringed out three or four times a day with carbolic lotion, and tampons of wool soaked in the lotion had been kept in the vagina. Before the patient was placed on the table she had an enema composed of two ounces each of beef-tea and brandy. The patient was placed in the lithotomy position and the vagina was well washed out with a 1 in 40 carbolic solution. The os uteri was then seized with vulsellum forceps and readily drawn down to the vulva. The mucous membrane was next divided round the whole circumference of the cervix and the anterior and posterior cul-de-sacs of the peritoneum opened. The uterine arteries were now secured and the uterus freed to a point above the arteries. I next endeavoured to tilt the uterus, both anteriorly and posteriorly, but from its size found it impossible to deliver it. I then discussed the advisability of opening up and dividing the uterus, but as I believed the tumour to be a sarcoma, and there was a risk of soiling the peritoneum extensively if I adopted this procedure, I determined to open the abdomen in the middle line and finish the operation from above. The patient still being retained in the same position, I, standing as before, after shaving the pubes and thoroughly cleansing the skin, made an incision some three inches long in the middle line and seized the fundus of the uterus with vulsellum forceps and readily drew it through the wound; I then found that the left ovary and tube were matted together to a loop of intestine. I detached this and ligatured the broad ligament from above downwards, first on the left and then on the right side, the lowest ligature meeting that which had been passed round the uterine arteries from the vagina. The broad ligaments now being divided between the ligatures and the uterus, the latter was easily lifted out. The abdomen was flushed out with warm water, being allowed to drain out through the vagina. All bleeding being arrested I caught the two flaps of peritoneum with curved pressure forceps through the vagina and drew them down, introduced a glass drainage-tube into the peritoneal cavity, and packed the vagina around the drainage-tube with strips of iodoform gauze. The patient, who was very exhausted, was now returned to bed. She rallied rapidly and in the evening was quite comfortable. The drainage-tube and gauze packing

were removed the next day, as the patient complained of a good deal of pain in the right side. Most of the ligatures were removed at the end of the week. There was a good deal of discharge, and pain was complained of in the right iliac region. On the tenth day there was a sudden rush of pus, which appeared to come from the right side rather high up; after this the temperature, which had been 102° and 103° F., dropped, and the patient was much easier. At the end of a fortnight the discharge had much decreased, and a large slough with some ligatures came away. The patient three weeks after the operation was lifted on to the sofa, and Mr. Walker writes to me that at the present time (Feb. 20th, 1895) she is in good health.

Remarks.—This case is one of interest, I think, from two points of view: one the fact of these large intra-uterine fibro-myomata becoming sarcomatous, and the other from the method in which the operation was performed. Sir John Williams has in his Harveian Lecture drawn attention to the way in which carcinomata occasionally assume a polypoid shape, while the uterine wall at their base may be healthy. These polypi, as Ruge and Veit and John Williams have explained, may break down and disappear, leaving a mass of cancer in the uterine walls. It is fully recognised that fibro-myomata of the uterus do undergo sarcomatous degeneration; thus, as Mr. Plimmer has drawn my attention to, Dr. Sims Woodhead [1] observes that portions of a fibroid tumour (of the uterus) undergo sarcomatous degeneration. Mr. Alban Doran [2] gives an account of a case of a fibroid becoming sarcomatous. Dr. Finlay [3] showed a case at the Pathological Society of a large fibroid which had become sarcomatous, the patient dying from secondary deposits in other organs. Numerous other instances have been recorded by Playfair, Cornil, and Rauvier, Pozzi, and others; but in none of these do they, I think, describe just the condition which existed in this case—viz., an intra-uterine fibro-myoma assuming a polypoid form, being connected with the fundus of the uterus by a narrow pedicle, and then becoming sarcomatous. Mr. Plimmer has kindly furnished me with the following pathological report of the specimen. He says: "The tumour consists of non-striated muscular tissue and sarcomatous material in varying proportions. In the hard parts it is almost entirely of the ordinary 'uterine fibroid' structure, but in all but the very hardest parts there is some sarcomatous material with it. The softer parts are almost entirely sarcomatous, with bands of connective tissue, which are rich in fusiform cells with prolongations of various length between; these bands are large collections of round cells with well-marked nuclei closely packed together. In the superficial parts are bundles of fibrous and unstriped muscular tissue. The blood-supply is rich, and there are around the vessels some spots of hæmorrhage. No mucous membrane or glands found." The operation was conducted much in the same way as described by Martin (Berlin), although I have never seen this surgeon operate. The advantages I think are obvious: first, from the position the patient is placed in, the abdominal parietes are made quite lax, so that it is easier to withdraw a tumour through the abdominal wound; secondly, the surgeon has complete control of the vaginal and abdominal openings, and so is enabled much more accurately to ligature the broad ligament, and the peritoneum and vagina are more readily and thoroughly washed out and all clots removed; the final steps of the operation differed from Martin's method in that he laces the peritoneum across through the abdominal wound, thus closing the peritoneal sac. I prefer, as I have mentioned on many former occasions, to draw the two flaps of peritoneum down into the vagina and packing around these strips of iodoform gauze, passing for the first twenty-four hours a glass drainage-tube into the peritoneum. The specimen consisted of a large polypoid growth, lobulated, in some parts very hard, at others soft and cystic. It is attached to the fundus of the uterus by a narrow pedicle. The uterine walls are somewhat soft and thinned. The cervix and os appear to be quite healthy.

Buckingham Palace-mansions, S.W.

[1] Woodhead's Pathology, p. 526. [2] THE LANCET, May 10th, 1890. [3] THE LANCET, March 10th, 1883.

DR. R. BALLOTA TAYLOR, an English practitioner residing at Santander, Spain, has been recently elected Corresponding Member of the Royal Academy of Medicine of Madrid

A CONTRIBUTION TO THE PATHOLOGY OF CHLOROFORM SYNCOPE.

BY ALEXANDER HAIG, M.D. OXON., F.R.C.P. LOND., &c.,
PHYSICIAN TO THE METROPOLITAN HOSPITAL AND TO THE ROYAL HOSPITAL FOR CHILDREN AND WOMEN.

THE extremely interesting paper by Mr. A. Wilson [1] and the notes and papers which have followed it have brought prominently before my mind the argument as to the causation of chloroform syncope which I have elsewhere given. [2] My argument is that syncope following the administration of chloroform has an identical causation with those more common conditions of syncope seen in connexion with high and rising blood pressure, and that in all cases it is the high and rising blood pressure which overpowers the heart and produces the syncope. It is generally acknowledged that the effect of chloroform inhalation is to lower the blood pressure, and it follows from this that when the chloroform has been stopped and its effects are passing off there will be a rise of blood pressure. Now I have good reason to believe that this rise of blood pressure is a danger to the heart, and that this danger is increased the greater and more sudden the rise and the weaker the heart or the more imperfect its nutrition. Further, the very interesting experiments and observations of Dr. R. Kirk [3] show that a similar irregularity of the heart and tendency to syncope is met with in animals after the last drop of chloroform has left the blood; and he has further pointed out that in the human subject these troubles often occur during a break in the administration or soon after it has been discontinued, and this is a point which several of the cases recently discussed in THE LANCET illustrate in a remarkable way. Thus in Mr. Wilson's Cases 1 and 2 we have, as he truly says, all the signs of primary failure of the circulation, and in his Case 6 we have this occurring as the patient is coming round and is sufficiently conscious to give a cry of pain; but whether in Cases 1 and 2 the syncope came on during slight breaks in the administration of the chloroform, as contended by Dr. Kirk, there is not sufficient evidence to show. With regard to Case 6 Mr. Wilson remarks that the syncope was due to the reflex inhibition of the heart by the pain, but that some blame must also be laid upon the semi-anæsthetic condition of the patient at the time, but I shall have to speak of these points again. It is interesting to note also that Mr. Wilson agrees with Dr. Kirk in looking upon a sudden quickening of the pulse as a danger signal. [4] Dr. Kirk also mentions in the reference just given the case of a patient who died from "the reaction which ensued when he began to breathe fresh air."

Then in THE LANCET of Nov. 24th, 1894, there is the record of a case of syncope under chloroform in which nitrite of amyl averted a fatal result and its effect is said to have been "almost instantaneous." I have elsewhere suggested that this drug acts by reducing the blood pressure and thus freeing the heart from its overpowering effects (for another case in which it was used with success see THE LANCET of March 7th, 1885). And even in the same number of THE LANCET (Nov. 24th, 1894) there is the record of a case in which death ensued, and it is said with regard to the onset of the fatal signs that "the administration of the chloroform had been stopped," and in an annotation on the same case in the next number (p. 1291) further points of great interest are mentioned: (1) that she had taken chloroform with impunity on other occasions; (2) that she had been confined fifteen months previously and had recently lost a child, and was suffering from the depressing effects of grief; (3) that there was slight renal disease (and I note also that one of Mr. Wilson's cases suffered from chronic Bright's disease); and (4) that "before the dentist had touched the patient, although the chloroformist had taken away the chloroform from her face and pronounced her ready for operation, she suddenly became ashy pale, but respiration continued"; here, then, we have exactly the condition described and insisted upon by Dr. Kirk and Mr. Wilson.

Another death under chloroform—in which there was great difficulty in giving the anæsthetic owing to the nose being the point to be operated on, and where the patient, therefore,

[1] THE LANCET, Nov. 17th, 1894.
[2] Uric Acid as a Factor in the Causation of Disease, second edition, p. 166.
[3] THE LANCET, Aug. 19th, 1893. [4] THE LANCET, June 23rd, 1894.

came round several times before the fatal event—is recorded in THE LANCET of Aug. 26th, 1893, and similar deaths from too little chloroform or a lull in the administration were discussed in 1892 and 1893.[5] I have mentioned above Mr. Wilson's opinion that in his Case 6 the syncope was due to the reflex inhibition of the heart by the pain; but it seems to me that a somewhat different relation between cause and effect to that he suggested is possible. Thus I have said, with reference to the effect of high blood pressure on the action of the heart,[6] that my own heart never falters or flutters except when there is high or rising blood pressure; but there is one condition I ought to have mentioned in which my heart does flutter or falter just as in pulse tracing A[7] (which shows well-marked high arterial tension), and that is during severe irritation of a sensory nerve. I happen to suffer many things with the dental branches of the fifth nerve, and I have several times noticed that with the most severe paroxysms of pain my heart falters and flutters just as it was doing when the above-mentioned pulse tracing was taken, for these cardiac irregularities, not being habitual with me, are always distinctly felt. Now, in the case of my own heart was this a reflex or was it due to rising blood pressure? If we may consider—and, so far as I know, physiology does not negative the idea—that irritation of a sensory nerve causes a general contraction of arterioles and a rise of blood pressure, the cause was in both cases the same, and my heart fluttered under the dental pain for the same reason that it did so in pulse tracing A, because in both there was high and rising blood pressure. We can now fully appreciate the bearing of Mr. Wilson's Case 6. Here the patient was coming out of the chloroform anæsthesia, and blood pressure was therefore rising; suddenly to this was added severe irritation of the sensory nerves of the knee, causing an acute rise of blood pressure, and it was little wonder that the heart was thus completely overpowered and that syncope at once resulted. And this explanation reminds me again of Marey's observation, which I have elsewhere quoted, that changes in the rate and rhythm of the heart, while often attributed to nervous influences, are in not a few cases really due to pressure changes in the vessels.[8] If further we may take it, as I have suggested, that excess of uric acid in the blood is the most common and potent cause of high blood pressure, we can easily understand the fatal result in Mr. Wilson's Case 2, with atheromatous arteries and granular kidneys, and in the other case mentioned above where there was slight renal disease, and this patient also had been suffering under the depressing effects of grief, while recent pregnancy and other factors are mentioned. Now I have no hesitation in saying that in one and all of these conditions there would probably be excess of uric acid in the blood, and that they are just the conditions in which I should expect syncope after chloroform to take place. I quite agree with Mr. Wilson that one cause of death after chloroform is syncope, and endorse his valuable suggestion that syncope under other conditions should be studied to illustrate it; and if this is done many will, I believe, be astonished to find how large a number of syncope cases are preceded or accompanied by evidences of high and rising blood pressure, and, if these can also be examined, with excess of uric acid in the urine and blood.

I make these suggestions for what they are worth—for a place beside other hypotheses; but if they are ever proved to be true it is evident that we should soon be in a position to prevent or to avoid all such cases of syncope, and also to say with considerable certainty in what cases and conditions it is dangerous to give chloroform.

Brook-street, W.

[5] Brit. Med. Jour., vol. i. 1892, and vol. ii. 1893, p. 1482.
[6] Op. cit., second edition, p. 109.
[7] Ibid.
[8] Circulation du Sang, p. 484.

THE annual meeting of the Royal National Hospital for Consumption and Diseases of the Chest, Ventnor, was held on Feb. 14th at 34, Craven-street, Charing-cross, Sir Algernon Borthwick presiding. Suitable reference was made to the death of the founder of the hospital, Dr. Arthur Hill Hassall, a portrait of whom has been placed in the large dining hall. During 1894 there were 793 patients, a higher number than in any former year. The income exceeded that for 1893, chiefly in consequence of a gift of £1500 from an anonymous donor.

FURTHER CASES ILLUSTRATING

THE RESULTS TO THE EMPLOYÉS OF IMPERFECT VISION TESTING ON RAILWAYS AND IN THE MERCANTILE MARINE.

BY W. C. ROCKLIFFE, M.A., M.B. CANTAB.,
OPHTHALMIC SURGEON TO THE HULL ROYAL INFIRMARY.

AS might be expected in a seaport town, I could, if I had time to peruse my notes of the last twenty years, find many cases to substantiate the contention of the deputation of ophthalmic surgeons which recently waited on the Board of Trade, which I take to be "that it is unfair both to the patients themselves as well as the general public that the testing of the acuity of vision and colour sense of railway and marine officials is not undertaken in every case by persons fully versed in ophthalmic knowledge and capable of detecting without doubt either errors of refraction, achromatopsia, or diseases of the eye—more especially the fundus." In support of which statement I quote from cases which have come under my care during the last eighteen months.

CASE 1.—A man aged thirty-eight had since boyhood been to sea and gradually risen to the obtaining of his master's certificate. Three times had his sight been tested, including colours, and each time he passed without difficulty; but on presenting himself as master he was found to be colour-blind and rejected. On examination he selected for green—salmon, grey, and drab; called rose green, and selected blues and purple; and matched bright red with dark brown.

CASE 2.—A young man aged twenty-five years had during the nine years he had been at sea never experienced any difficulty in "picking up lights," and had passed the colour test twice before, but was rejected on passing for master. On examination he selected for green—greys and light brown; for rose, purple and blue; and for red, dark brown.

CASE 3.—This case particularly exemplifies the hardship entailed by inefficient examination. A young man aged twenty-two years had been educated at a public navigation school, been second and first mate, and obtained his master's certificate, but was rejected at the moment his appointed ship was awaiting its captain. Throughout the whole of his life he bore a most exemplary character, and had twice been passed by the same examiner before rejection. His surprise and disbelief in his colour blindness caused him to consult me. On examination he called green green, but selected drab, salmon, and grey; he called rose light green, and selected blues, violet, and emerald green; and he called red red, but selected dark brown and claret.

CASE 4.—A young man aged twenty-three had worked his way through the shops, been engine-cleaner, and afterwards fireman for three years and a half, and was refused his driver's certificate on one of the largest lines in England on the ground of colour blindness. On examination he selected as green—magenta, drab, grey, and buff; and as rose—emerald green, ultramarine, and violet.

I have also within my recollection the case of a fireman who could not see the guard's signal at the end of the train, and yet this man had been for some years with the same company, and it was only when his driver refused to take the whole responsibility during foggy weather that his condition was discovered. Another man had considerable amblyopia with atrophy of the optic nerve; and again, a third, an able-bodied seaman, was refused by his captain, a personal quarrel being assumed as the motive; on examination his vision was found to be $\frac{6}{18}$, and he had high myopia, and yet this man for years had taken his watch on a large passenger steamer.

Remarks.—These cases will, I think, add some little proof to the assertion that not only ought our railway officials and seamen to be examined by competent persons *before* they commence their career, but also (as the deputation further insisted) from time to time while they are following their various avocations; and doubtless a considerable volume of similar evidence might be obtained from many other ophthalmic surgeons, by which even the Board of Trade might be compelled by public feeling to take such steps as were advocated by the deputation, and, as Mr. Beaumont correctly states, prior to some serious calamity at sea or at home. The deputation could not possibly have been composed of a

more powerful assembly of ophthalmic surgeons. Nevertheless, I feel that they might have considerably strengthened their hands had they solicited from their many *confrères* such evidence as was supplied by Mr. Beaumont in THE LANCET of the 9th inst. The whole matter was somewhat "rushed" at the meeting of the Ophthalmological Society on Jan. 31st, and an influential deputation was promptly formed to support that of the British Medical Association; but, judging by the cases quoted on the spur of the moment by several members present at the meeting, I venture to think it would have been better to have issued circulars asking for information and cases to support their argument, the immense necessity for which is of undeniable public importance.

Charlotte-street, Hull.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

REMOVAL OF PAROTID TUMOUR; SUBSEQUENT SALIVARY FISTULA.

BY L. A. LAWRENCE, F.R.C.S. ENG.

A MAN of middle age came to the Western General Dispensary early in November, 1893. He had a tumour in his left parotid region about the size of a small orange. It was of four years' duration and presented the usual signs of an innocent enchondroma. The patient desired its removal on account of its unsightliness. After watching the case for a short time I decided to operate, and accordingly on Nov. 16th the tumour was removed with ease and turned out to be an enchondroma. A line over the most prominent part of the swelling was chosen for incision; this was three inches long, and extended from just below the tragus of the ear to a point midway between the angle of the mouth and the angle of the jaw. Only the superficial integuments were incised, and immediately below them the capsule of the tumour presented. The mass itself shelled out. There was no hæmorrhage, and the facial nerve was not seen. The wound was washed out and the skin brought together along the whole line of the incision with horsehair sutures. The patient made an excellent recovery. The dressings were soaked through on the first night, and this condition was observed each time they were changed. Owing to staining the true nature of the discharge was not appreciated till four days after the operation, when the wound having healed in nearly its whole length the clearness of the fluid escaping at once showed it to be saliva. The small salivary fistula was situated in the line of the incision about one inch from the ear. This condition continued for five weeks. On Dec. 10th I probed the left duct of Steno from the mouth; there was considerable difficulty in finding the opening, much more so than on the right side. A fine probe entered about two inches and did not point towards the wound. Between the 10th and 15th a probe was inserted twice again. The house surgeon, Mr. Jackson, then gave him some belladonna in hopes of reducing the flow of saliva. The quantities taken were fifteen minims of the tincture on Dec. 15th. Then twenty minims each day till Dec. 21st, when the drug was omitted; from then till the 23rd twenty-five minims were taken daily. After this date the drug was stopped. On Dec. 27th the saliva ceased to run from the wound, which then closed spontaneously. I have brought the case forward on account of several curious features it presented. 1. As to the cause of the flow of saliva. The incision was quite superficial, and the facial nerve, except for, perhaps, some fibres on the surface, was quite intact. It may be doubted therefore whether Steno's duct was the source of the flow. A possible glandula socia may have been cut, but I was not aware of any such proceeding at the time of operation. 2. The influence of the belladonna treatment. After the first dose the patient said less saliva flowed through the opening. The first dose, however, was given the same day, when the last probing took place. There was never any dilatation of the pupils and only a trifling dryness of the mouth on waking in the morning, not sufficient for its being considered due to the drug. There were no other physiological effects of belladonna observable. Then, again, the flow did not cease till five days after the medicine had been discontinued. Lastly, one may ask, What effect had the probing of the duct? To my mind none. If the duct had been cut probing the distal portion would not have helped the saliva to flow through it. If it had not been cut the saliva could not have escaped from it. I have lately again seen the patient, who is in excellent health in every way.

Harley-street, W.

REMARKABLE GUNSHOT INJURIES.

BY J. G. STRACEY FORREST, L.R.C.P. LOND., M.R.C.S. ENG.

ON Jan. 18th, 1895, being in the vicinity, I was called by the police to see the body of a man found dead on the beach at St. Leonards. He was tall and stout, and apparently about thirty-six years of age. On examining the body, which was still warm, I found the whole of the left side of the face blown away; the roof of the mouth and also the cranial bones on that side were broken into fragments, enormous damage being done to the brain substance, which was exposed. Although the terrific force succeeded in producing such terrible destruction it nevertheless failed to produce any external lesion of the scalp. The whole scalp covering the calvarium was intact, there being an utter absence of external injury beyond that already mentioned on the left side of the face, although the cranial bones on that side and in front were so freely broken and loose. I also found about four inches below and one inch and a half internal to the left nipple a circular wound with charred edges, from which fat protruded, but no great hæmorrhage had apparently taken place. There was a corresponding hole in the waistcoat, shirt, and vest. On Jan. 20th, in conjunction with Dr. Kenyon, a post-mortem examination was made. We found the seventh and eighth ribs smashed, but the contents of the chest were uninjured. On examining the wound, which led straight in, we found the two wads covering the shot and powder and several small shot, apparently sixes, embedded in the fat, muscles, and tissues, but no perforation of the stomach or intestines was discovered. He was found lying on the beach on his back by a coastguardsman, with a double-barreled 12-bore gun lying between his legs, the muzzle resting on his stomach and inclined to the left. The right barrel had been discharged, but the left was still loaded. It appears that he must have first discharged the gun at his breast, but, this not proving immediately fatal, reloaded, placed the barrels in his mouth, and fired again, causing instantaneous death.

St. Leonards-on-Sea.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ROYAL FREE HOSPITAL.

ACUTE INTUSSUSCEPTION IN AN INFANT AGED FOUR MONTHS; LAPAROTOMY; RECOVERY; REMARKS.

(Under the care of Mr. E. W. ROUGHTON.)

WE have for many years advocated the publication of cases of intussusception which have been submitted to operation, for the list of recoveries after abdominal section for this condition, at any age, is still a small one, and information is required on several heads. The case recorded below is especially worthy of notice, because, so far as we can ascertain, the patient is the youngest on whom laparotomy has been successfully performed for that condition. Dr. Kammerer[1] and Mr. Howard Marsh[2] have each recorded a success after operation in a child aged six months; but it is well known that abdominal section is only

[1] Medical Record, New York, 1890, p. 114.
[2] In 1875.

too often followed by a fatal result when the patient is under the age of two years. The attainment of success in children is not entirely dependent on the promptitude with which laparotomy is performed after the child has come under observation, although the duration of the disease does influence the prognosis most seriously. We have seen laparotomy carried out within six hours after the patient showed symptoms of the intussusception; reduction was easily effected: the manipulation required was comparatively slight, took but a short time, and the surroundings were favourable, yet the child died in a few hours with cerebral symptoms, not due to visible organic disease. There was no peritonitis, and the condition of the parts involved was satisfactory. We do not think this experience unusual. Shock is also a result of operation much to be feared in children. Whilst there are without doubt cases in which the patient would have died but for the operation which permitted reduction to be promptly and certainly effected, the result of abdominal section has not been so satisfactory that we can afford to discard the use of injections of air or fluid, which have frequently proved effectual. We are strongly of opinion that these measures should be tried in all cases where the symptoms have been in existence for less than forty-eight hours, and that laparotomy should be recommended if injection has failed. We do not discuss this question more fully as we have often brought it forward in the columns of THE LANCET.[3]

A female infant aged four months was admitted to the Royal Free Hospital on Dec. 27th, 1893. On the previous day she had been suddenly seized with pain in the abdomen and vomiting, soon followed by the passage of blood per rectum. The following was its condition on admission. The child was well nourished and not collapsed. The abdomen was tense but not distended; in the left iliac region a fulness but no distinct tumour could be felt. Per rectum a soft, elastic mass could just be reached towards the left iliac region; the rectum itself was empty. An operation was performed twenty-four hours after the onset of the symptoms. Chloroform having been administered the abdominal tumour could be distinctly felt. No attempt was made to reduce the intussusception by injection or inflation. The abdomen was opened in the middle line. On introducing the finger the mass was at once found and brought out at the wound; reduction was easily effected by kneading from below upwards. The invagination extended from the ileo-cæcal valve to the sigmoid flexure. Rapid and complete recovery ensued. The patient was last seen six months after the operation; there was then a small umbilical hernia the result of whooping-cough, but no bulging of the scar.

Remarks by Mr. ROUGHTON.—I attribute the recovery of this child to the early performance of abdominal section without previous attempts at inflation or injection. Many cases of acute intussusception have been cured by inflation or injection, and it is quite possible that this case might have been cured by one of these methods; on the other hand, many cases have been killed, either directly by bursting the intestine or indirectly by the waste of time entailed by unsuccessful attempts at reduction. The fatality of acute intussusception varies directly as the length of time allowed to elapse before reduction is effected. I think that inflation should be discarded, that injection should be reserved for the very earliest cases, and that immediate operation should be performed in all cases of twenty-four or more hours' duration.

ROYAL BERKSHIRE HOSPITAL.

PERFORATION OF A GASTRIC ULCER; OPERATION; RECOVERY; REMARKS.

(Under the care of Mr. J. HOPKINS WALTERS.)

WE publish with pleasure the account of a successful operation for the cure of perforating gastric ulcer. The promptitude of diagnosis and treatment is answerable for the happy result, and we have nothing to add from a scientific point of view to Mr. J. Hopkins Walters' remarks.

A woman aged twenty years was admitted into the Royal Berkshire Hospital, Reading, on the morning of Sept. 16th, 1894. She had been sent by Dr. G. H. E. Holden, who suspected perforation of a gastric ulcer. She had suffered from gastrodynia and vomiting after food for nearly four years. The evening previous to admission she had tea and bread-and-butter about 5 P.M., and whilst walking about 9 P.M. was seized with sudden pain in the left costal region. She felt sick, but did not vomit. On her admission the temperature was 100° F. and the pulse 120, weak and irregular. She complained of pain at the margin of the left costal cartilages, transmitted to the left shoulder, which, however, was not severe except on movement. The abdomen was somewhat distended; the liver dulness was absent. There were general tympanites and slight tenderness over the whole abdomen, which was more marked over the region of the stomach. There was no marked collapse nor typical facial expression, and the legs were not drawn up, but abdominal respiratory movements were absent. At 10.30 A.M., after consultation, Mr. Walters opened the abdomen by a median incision in the epigastrium. The peritoneum was distended with flatus, which escaped when the cavity was opened. There was no general peritonitis. The stomach was easily reached and well pulled out, when on the anterior surface, about three inches from the cardiac end, towards the lesser curvature, there was seen a clean-cut, punched-out aperture the size of a cedar pencil in the centre of a thickened and hardened portion of stomach wall of the circumference of a half-crown piece. The edges of the perforation were almost cartilaginous in appearance and feel. There were no adhesions. No stomach contents were found in the peritoneal cavity, but the sponges brought up some pieces of lymph from the region of the spleen. The ulcer was doubled upon itself, in the long axis of the stomach, with the serous surfaces in apposition and the perforation in the centre of the fold. The serous membrane was united with a first row of Lembert's sutures, followed by an outer continuous suture, all in fine catgut. The peritoneal cavity was then washed out with weak boracic lotion and the abdominal wound sutured. A quarter of a grain of morphia was given by the skin. The progress of the case calls for little remark, recovery having been rapid and uninterrupted. There was slight chloroform sickness, the vomited matter being a blood-stained fluid. The temperature, which previously to operation was 100·4°, at once fell and never afterwards reached 100°. The patient was at first fed with rectal enemata, lemon-juice with water was used as a mouth wash, thirst was relieved by large injections of water, and morphia was continued hypodermically. On the 18th, two days after the operation, cold water was allowed by the mouth in very small quantities often repeated, as thirst was urgent. On the 23rd, seven days after the operation, one ounce of chicken broth every half hour was permitted by the mouth and the quantity gradually increased. She was next allowed arrowroot three times a day, and on Oct. 5th ate some boiled sole without discomfort resulting. The wound was dressed on the seventh day and found to be completely united. The only drawback during convalescence was some phlebitis in the left saphenous vein, leading to slight swelling of the leg, which soon passed away. On Dec. 24th she was discharged, having regained strength and flesh. She was cautioned to keep chiefly to a soft, easily digested dietary.

Remarks by Mr. WALTERS.—This case was a particularly favourable one by reason of the long time that elapsed from the last meal to the occurrence of perforation, this taking place on an empty stomach, of immediate medical attendance with accurate diagnosis, of prompt transportation to hospital, and of early operation. The patient's ability to endure the operation was, therefore, at its best, although she was quite a delicate girl. In performing the operation I dealt with the conditions on their merits without adhering strictly to precedents. On finding the hole I first considered whether I should follow the lead of some operators by excising the entire ulcer. This would have left such a formidable opening in the organ, and the case looked so favourable owing to the absence of complications, that I was unwilling to run the risk of making it more grave by such a procedure. My judgment in this matter seems to be justified by the resulting continuous convalescence. I also abstained from the fashionable "procedure of precision" of injecting water into the viscus to see whether my needlework had produced an absolutely impervious seam. I think this in most cases a needless precaution on account of the rapid adhesion of serous surfaces to one another and the early perfection of such sealing. Where the stomach is found to contain food I think the proper thing is to thoroughly empty and wash it out. These, with perfect cleansing of the peritoneal cavity, are essentials to success, and there is no chance of leakage from an empty stomach

[3] THE LANCET of Jan. 26th, 1889, Nov. 23rd, 1890, May 23rd and June 13th, 1891, and Feb. 24th, 1894.

where the sutures are inserted with judgment and care. In this case, with perfect impunity, I permitted the ingestion of small quantities of water so early even as the second day, by which time peritoneal adhesions are tolerably firm. The result from first to last has been most gratifying, and I am glad to be able to add one more to the small list of successful operations for the cure of perforating gastric ulcer.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Endosteal Sarcoma of the Patella.—Fœtus with Reptilian Characters in Sexual Ducts.—Adenoma of Lip.—Portal Thrombosis and Hepatic Infarction.—Exhibition of Specimens.

AN ordinary meeting of this society was held on Feb. 19th, the President, Dr. PAVY, being in the chair.

The PRESIDENT alluded to the loss sustained by the society in the death of Mr. Hulke, a past president of the society. He referred to Mr. Hulke as possessed of great ability and of high and varied mental attainments. At the time that he was president of the Pathological Society he was also president of the Geological Society, and he occupied a prominent position among palæontologists. Mr. Hulke was a man of the highest rectitude of character and of an evenly balanced mind, whose opinion could be relied upon with the greatest security. A resolution of the council that expressions of sympathy should be conveyed to Mrs. Hulke was carried *nem. con.*

Mr. D'ARCY POWER showed for Mr. ROBERT JONES of Liverpool an Endosteal Myeloid Sarcoma of the Patella. The new growth involved the whole of the knee-cap, but the articular cartilage remained and was healthy. The tumour was solid. The tibia, fibula, femur, and the articular surfaces of the knee appeared to be quite healthy. The patient was a girl aged twenty who had twice injured her knee by falling upon it. The growth was of four and a half years' duration and its origin dated from the last injury. Mr. Robert Jones at first thought that the growth was an enlarged bursa patellæ, so closely did it simulate fluctuation. The skin over it was blue and brawny, however, and the hollow around the patella was obliterated in a manner which was unusual in the case of such enlarged bursæ. The tumour continued to grow and Mr. Jones amputated the thigh in its middle third. This was the first case of endosteal tumour which had been brought before the society. Mr. Power knew of only one other specimen, and that was in the Hunterian collection, to which it had been presented by Sir Astley Cooper. The Hunterian specimen, however, presented the ordinary cystic character of myeloid sarcomata, whilst the present growth was solid. It was doubtless this solidity which had caused the difficulty in recognising it, for although it was very soft there was no eggshell crackling.—Mr. SHATTOCK said that there was a specimen in the museum of St. Mary's Hospital, which was described and illustrated by Mr. Pepper. It was a primary sarcoma arising in the patella and leaving the cartilage intact.—Mr. BOWLBY said that where collections of blood existed in these sarcomata they usually grew very slowly, while if the growths were solid they progressed more rapidly.—Mr. D'ARCY POWER, in reply, said that although the growth was solid it had existed nearly five years.

Mr. S. G. SHATTOCK exhibited a Male Fœtus showing Reptilian Characters in the Sexual Ducts. The specimen showed a malformation of the sexual ducts which came in the category of abnormal arrest at a normal stage in human development, and which he regarded as best explained on the principle of atavism or reversion to an ancestral type. The malformations in question were associated with extroversion of the bladder and prolapse of the posterior segment of the intestine, which terminated blindly at the umbilicus. The particular characters referred to, however, consisted: 1. In a remarkable elongation of one of the kidneys, recalling the condition in certain lacertilia and ophidia, and it was noteworthy that the kidney so altered was the right, for in ophidia the right kidney was normally much longer than the left. 2. In the persistence of both Müllerian ducts, which remained quite distinct from one another throughout and opened in the neighbourhood of the ureters on the extroverted surface. This resembled the persistence of both oviducts in an ununited condition in the females of reptilia. 3. On one side the vas deferens opened into the ureter. This was a persistence of the primitive embryological condition in man, and it represented what was a permanent one in the males of lacertilia, where these canals opened together in the cloaca. There were in addition two blind sacs representing the anal pouches of reptiles. Mr. Shattock observed also that the extreme degree of hypospadias in the human subject, though usually regarded as strictly pathological, might really be viewed as a reversion to a reptilian type, for in the crocodile and tortoise the penis was single and the urethra represented merely by a groove on the lower or posterior surface, near the base of which lay the openings of the vasa deferentia in the cloaca.

Mr. DUNN showed a specimen of Adenoma of the Lip removed from a young adult who was admitted into Guy's Hospital in December. The growth had existed during the greater part of the patient's life. It was firm, elastic, encapsuled, rather soft at one part, and shelled out easily. Microscopically the tumour was composed of a large quantity of fibrous tissue and contained numerous spaces lined with one or two layers of epithelium. There was no cartilage.

Dr. N. PITT showed two specimens of Portal Thrombosis and Infarction of the Liver. The first specimen was removed from a man aged thirty-six, admitted into Guy's Hospital after an injury to the abdominal wall. He had a strangulated scrotal hernia, associated with bruising of the bowels. Death resulted from membranous enteritis and paralysis of the bowel. In the right lobe of the liver there was an infarcted area, with a thrombosed portal vein in its centre. Though the liver showed no bruising, yet probably the blow injured a branch of the portal vein and so gave rise to the thrombosis and infarction. Dr. Pitt showed a second specimen taken from a patient who had been under Dr. Washbourn's care. The man was aged forty-eight, and after recovering from an attack of hemiplegia he succumbed to a second seizure. Two patches of thrombosis were found in the aorta and other thrombi were present in the renal, splenic, and cerebral arteries. The greater portion of the portal vein and the right middle hepatic vein were thrombosed. The liver showed numerous infarcted areas, some being deeply engorged and others pale. Though the whole splenic artery was blocked, yet infarctions only occurred here and there in the spleen, and the same remark applied to the brain.—Dr. CYRIL OGLE said that in a similar specimen he had shown he attributed the infarction to a septic condition of the blood, which therefore extravasated readily.—Dr. ROLLESTON, in a case of occlusion of the main branch of the splenic artery, had found only disseminated infarcts in the spleen. A similar condition he had found associated with thrombosis of the splenic vein.—Dr. PITT, in reply, said that in one of the cases shown there were adhesions, and this permitted a considerable amount of collateral circulation.

The following card specimens were shown and described:—

Dr. W. W. ORD: Hydronephrosis due to Stricture of Ureter.

Dr. N. PITT: (1) Kidneys increased Fourfold by Acute Nephritis; (2) Renal Calculi in Infants.

Dr. C. ARKLE: Ulcerative Colitis.

Mr. Dunn: Uric Acid Calculi from a Child aged eighteen months.

Dr. CYRIL OGLE: Two specimens of Gastro-jejunostomy for Carcinoma.

HUNTERIAN SOCIETY.

Exhibition of Cases.

AN ordinary meeting of the Hunterian Society was held at the London Institution on Jan. 23rd, Mr. J. CHARTERS SYMONDS, President, being in the chair.

Sir HUGH BEEVOR showed a case of Tumour of the Left Loin.

Mr. OPENSHAW showed a case of Congenital Sacral Tumour in a child aged sixteen months, which projected backwards in the middle line over the coccyx as a globular swelling the size of a walnut, translucent, fluctuating, and unaffected by crying. Digital exploration showed that the tumour passed up in front of the sacrum nearly as high as its base. Mr. Openshaw also showed a case of Multiple Osteitis, affecting both tibiæ, both fibulæ, both ulnæ, the left humerus, and the lower part of the shaft of the right femur in a boy aged ten, who presented no evidence of scrofula or congenital syphilis and who gave no history of injury.

Dr. WOODS showed three Choreic patients (females) aged seventeen, fifteen, and eight years and a half who had been much improved by hypnotism. He detailed the results of eleven cases of chorea which he had treated. Of these, nine have recovered, one has relapsed, and one was too recent to be of value.

Mr. POLAND showed a case of Excision of the Isthmus and (portion of) Lateral Lobe of the Thyroid. The patient, a woman aged thirty-seven, had noticed swelling of the right side of the neck about the middle of last August, but only lately had it become painful and "pressed upon her throat," as she described it. She also had pain during deglutition, or rather pain was present just on the commencement of this act. This interference with the œsophageal function was likewise marked by the desire to perform the act of deglutition, which was very frequent and at last became most distressing. There was at first but little difficulty in breathing—in fact, only a few days before she was first seen, at the commencement of last December, did any marked symptoms of interference with expiration present themselves. She had then only some occasional choking sensation. However, between that time and the date of the operation on Dec. 17th she had two or three bad attacks of dyspnœa, which were so severe that she thought she was about to be suffocated. The tumour then measured four inches obliquely from above downwards and three inches obliquely side to side. With a median incision three inches and a half in length in front of the trachea, which, together with the thyroid, was pushed over to the left side, it was possible to remove the whole of the enlarged isthmus and nearly two-thirds of the right lateral lobe. A notch indicated the junction of the hypertrophic isthmus and the left lobe. The thyroid tissue was divided at this point by a blunt director; a similar course was adopted to remove the mass on the right side; a large rounded portion was left behind for fear of any subsequent myxœdematous changes. During the removal of the mass projecting behind the sternum a cyst one inch and a quarter in diameter was displaced from behind the bone, and ruptured during removal. It contained six ounces of brownish fluid. No ligatures were used either for the isthmus or lateral lobe, and there was no hæmorrhage. One or two small branches of the anterior jugular vein and a few other small vessels at the upper end of the tumour required to be tied. These were the only ligatures used, with the exception of the buried silk ligatures employed to bring the different fascial layers together. The wound was closed by silkworm gut without any drainage, and was found to have healed by first intention at the first dressing on the seventh day. The patient immediately after the operation lost all her distressing symptoms, and had remained well since. Mr. Poland thought this might be considered an ideal operation upon such conditions of the thyroid gland as were here to be dealt with, provided that the most rigid asepsis was carried out and the several layers of cervical fascia brought together in their normal relation carefully by deep sutures. By the latter means the cavity left after the removal of the tumour might be almost, if not entirely, obliterated (as in this case). The isthmus after removal was one inch and a quarter in width, and the left lateral mass rather more than three inches and a half. Microscopical sections made by Dr. W. Edmunds were exhibited. They showed normal thyroid tissue with normal vesicles.

Mr. HUMPHREYS showed a patient convalescent from Typhoid Fever complicated with Empyema.

Mr. SYMONDS showed a patient in whom he had Ligatured both Common Carotid Arteries. The history of the case briefly was that during an operation for the removal of the superior turbinated bone by a throat specialist profuse hæmorrhage occurred, which was arrested by firmly plugging the nares and nasal fossa. A few days subsequently he came under Mr. Symonds' care with excessive chemosis and proptosis, and with loss of vision in the left globe and a very loud bellows murmur over the whole of the left temporal and frontal regions. Traumatic aneurysm of the cavernous sinus was diagnosed and the left carotid ligatured, with marked improvement. At a later date the symptoms again increased in severity and the right common carotid was ligatured, with a perfect cure. No bruit was now audible and no symptoms were complained of. With the exception that vision in the left globe was lost the patient was perfectly well.

Dr. ARNOLD CHAPLIN showed a case of Morbus Cordis associated with Pulmonary Phthisis.

BRITISH GYNÆCOLOGICAL SOCIETY.

Presidential Address on the Evolution of Obstetrics and Gynæcology.—Exhibition of Specimens.

A MEETING of this society was held on Feb. 14th, Dr. CLEMENT GODSON, President, being in the chair.

The PRESIDENT delivered his inaugural address on the Evolution of Obstetrics and Gynæcology. At the commencement of his address Dr. Godson congratulated the society on having just entered its second decennial period, the foundation meeting having taken place on Dec. 27th, 1884, and the inaugural meeting on March 11th, 1885. He then passed in review the gynæcological references in the writings of Hippocrates, Celsus, Galen, Soranus, Paulus Ægineta, and Albucasis, and alluded to Philumenus, in whose work, quoted by Aëtius, occurs the first mention of a vaginal speculum. The instrument, however, is known to have been in use as early as the destruction of Pompeii, examples having been found in the course of recent excavations there. He described the imperfect knowledge of utero-gestation possessed by Hippocrates and Aristotle, who supposed that the womb was pouched, males being carried on the right side and females on the left. He continued:—

"In 1552 Thomas Raynald published in London 'The Byrth of Mankynd, otherwise named the Woman's Booke.' It is in reality a translation of the treatise, 'De Partu Hominis,' which appeared in 1532 and was originally written by Eucharius Rhodion. An earlier edition dated 1540 is ascribed to Richard Jonas, but this I have not seen. There are three or more editions of Raynald's book; I have the original one here. Our late distinguished Vice-president, Dr. Aveling, devoted considerable attention to it in his book on the 'History of Midwives.' Ambroise Paré, a noted French army surgeon in the sixteenth century, gives evidence in his writings that he was a practical obstetrician. Mauriceau, by his 'Traité des Femmes Grosses et de celles qui sont nouvellement Accouchées,' published in 1668, marked a new era in midwifery. He was the first to take notice of the obliquity of the womb as an obstacle to a speedy and safe delivery. The structure of the ovum and the problems of gestation fascinated the master mind of William Harvey, and claimed the attention of men worthy to rank with him, such as Naboth of Leipzig, Morgagni, Santorini, and William Hunter, the latter of whom was a learned and scientific rather than a great clinical obstetrician. In 1748 he was elected one of the surgeon men-midwives to the Middlesex Hospital, and soon afterwards to the British Lying-in Hospital. In 1764 he was appointed Physician Extraordinary to Queen Charlotte, and ten years later he published his great work, 'On the Gravid Uterus,' which had been twenty-four years in preparation. He died in 1783, aged sixty-five years. William Smellie, another famous accoucheur, was at first a general practitioner at Lanark, in Scotland, in 1716. Subsequently he studied midwifery for three months in Paris under Grégoire and settled in London. He did not become a fashionable physician, like his contemporaries, Hunter, Manningham, Maubray, or Douglas, but he did more for the advance of surgical obstetrics than any three men of his time. He is said to have first heard of the forceps in 1733. This instrument, however, is supposed to have been known to the Chamberlen family in the beginning of the seventeenth century, and to have been kept secret by them for nearly a hundred years. Prior to 1733 it was employed with great success by Mr. William Giffard, surgeon and man-midwife, for in this year Dr. Edward Hody, F.R.S., published a revised edition of Cases in Midwifery, 225 in number, 'which were for the most part attended with a great deal of danger and difficulty,' and to which Mr. Giffard was summoned by midwives. The dedication of the book bears date July 30th, 1733. In it are drawings of Mr. Giffard's 'extractor,' and also of an extractor as improved by Mr. Freke, surgeon to St. Bartholomew's Hospital from 1729 to 1755. This shows that in the early part of the eighteenth century midwifery was practised by surgeons on the staff of St. Bartholomew's Hospital. Mrs. Elizabeth Nihell, professed midwife, in her treatise on 'The Art of Midwifery,' published in London in 1760, says that Mr. Giffard's extractor is supposed by Levret and others to be nothing more than the 'windowed' forceps, which had long been known. Edmund Chapman, surgeon, also in 1733, published an essay 'On the Improvement of Midwifery,' in which he describes several forceps

of very dissimilar patterns, and claims for himself the credit of discarding the screw connecting the two blades. In 1724 appeared 'The Female Physician, containing all the Diseases incident to that Sex in Virgins, Wives, and Widows,' by John Maubray, M.D. Denman says that Dr. Maubray is reported to have been the first lecturer on midwifery in Great Britain. He gave lectures in his house in New Bond-street about 1724. Sir Fielding Ould, man-midwife, in a treatise on Midwifery in three parts, published in Dublin in 1724, was the first to describe the mechanism of labour in head presentation. The first lying-in hospital in London—viz., the British—was founded in 1749; the City of London Lying-in Hospital followed in 1750, Queen Charlotte's in 1752, and the General Lying-in Hospital in 1765. The first English obstetrical society was founded in 1825, with Sir Charles Clarke as its President, one of its objects being 'to raise to a proper and dignified station the practitioner in midwifery.' It had, however, to encounter strenuous opposition. Sir Anthony Carlisle, F.R.S., surgeon to the King and to the Westminster Hospital, published in the *Times* of May 1st, 1827, an 'Address to His Majesty's Judges, Coroners, and Justices of the Peace,' cautioning them against the worldly designs and the injurious practices of man-midwives. Similar arguments were used by other opponents, but the agitation was fortunately unsuccessful, and the first Obstetrical Society, after exertions continued during three years, secured the following points: (1) A recognition of the honourable position of obstetricians among the medical practitioners of the three corporate bodies; (2) an examination in midwifery by the Apothecaries' Company; (3) the admission of persons practising midwifery (being members of the College of Surgeons) to be eligible for a post on the Council; (4) the concession by the College of Physicians that Licentiates practising midwifery shall not be ineligible for the Fellowship of the College.[1] The barriers to the undertaking of midwifery by men being thus removed, obstetric practice soon fell largely into their hands, as, in fact, had already been the case in France for more than a century. Midwifery and gynæcology being essentially surgical, it is strange that those who profess and teach these subjects are ranked among the physicians in our great hospitals and medical schools. I referred to this anomaly in my presidential address in the Obstetric Section of the British Medical Association in Belfast in 1884, and I hope that the time is not far distant when the title of obstetric surgeon shall be substituted for that of physician accoucheur, and when the obstetrician shall be ranked on the surgical side of the hospitals."

The following specimens were shown:—

Dr. MACNAUGHTON JONES: An Intra-uterine Non-pedunculated Fibroid, removed from a patient, aged thirty-two years, recently married.

Dr. LEITH NAPIER: Senile Uterus, removed by vaginal hysterectomy for Procidentia.

HARVEIAN SOCIETY OF LONDON.

Relapsing Typhlitis.

A MEETING of this society was held on Feb. 7th, the President, Sir JOHN WILLIAMS, being in the chair.

Mr. TREVES gave an account of an additional series of eighteen cases of Relapsing Typhlitis in which he had removed the appendix during the quiescent period. He pointed out the morbid conditions of the appendix which are most commonly met with in this affection, and mentioned the fact that when once an abscess had formed the trouble very seldom indeed relapsed. The difficulties of the operation depended mainly upon adhesions. If no adhesions existed the procedure was most simple. In some of the cases in the series perforations in the cæcum and in the ileum had been laid bare during the operation and had been closed by sutures. Many concretions had been removed, and in one instance the appendix was found firmly attached to the rectum. Mr. Treves alluded to the medical measures employed to ward off attacks and especially to the questions of diet, the avoidance of milk, the care of the bowels, the importance of perfect mastication, the use of such an intestinal antiseptic as salol (in a powder of ten grains), and the employment of massage.

[1] Obstetrical Society's Transactions, vol. i.

The PRESIDENT inquired upon what grounds Mr. Treves maintained that the occurrence of an abscess tended to cure the condition, and, commenting upon the subject of diet, said that he was unable to join in Mr. Treves' strictures upon milk as a food for invalids.

NORTH-WEST LONDON CLINICAL SOCIETY.

Exhibition of Specimens and Cases.

A MEETING of this society was held on Feb. 13th, Mr. MAYO COLLIER, in the absence of the President, Sir R. Quain, being in the chair.

Dr. KNOWSLEY SIBLEY exhibited the Supra-renal Capsules of a woman in whom the symptoms of Addison's disease had developed rapidly, leading to death suddenly and by exhaustion.—Dr. HARRY CAMPBELL pointed out that the sudden death in this case was noteworthy.—Dr. GUTHRIE dwelt on the fact that the degree of pigmentation in Addison's disease was not a guide in prognosis. He related cases of Bright's and Graves' diseases in which very extensive pigmentation had been observed.

Dr. STOWERS showed a case of Lupus Erythematosus, and described the method of scarification.—Mr. Jackson Clarke, Dr. Wilbe, and Mr. Collier took part in the discussion.—Dr. STOWERS also showed a rare form of Tertiary Dermato-syphilis, simulating erythematous lupus.

Dr. HARRY CAMPBELL showed the Heart of a Man who had died from acute aortic obstruction, there being no evidence of regurgitation.—Dr. GILL related two similar cases occurring in one family.

Mr. MAYO COLLIER showed a case of Contracture of the Posterior Tibial Group of Muscles in a girl who had infantile paralysis and advocated division of the tendo Achillis in such cases as a complete and sufficient treatment.—Dr. CAGNEY objected that there were a great many cases in which much more should be done in order to develop the immature muscular fibres, and contended that in this respect the subjects of infantile paralysis were lamentably neglected.—Mr. COLLIER also showed a case of Flatfoot, and demonstrated the mechanism of its production upon the skeleton.—Mr. JACKSON CLARKE observed that he had found a system of gymnastic exercises of great service in flatfoot.

LIVERPOOL MEDICAL INSTITUTION.

Ligature of Right Femoral and Left External Iliac Arteries for Aneurysms.—Two Cases of Beri-beri.—Intussusception, successful approximation by Murphy's Button.—Carcinomatous Stricture of Transverse Colon, successful approximation by Murphy's Button.—Fourteen Cases of Excision of the Rectum for Cancer.

A MEETING of this society was held on Feb. 14th, the President, Mr. CHAUNCY PUZEY, being in the chair.

Mr. ROBERT JONES showed a patient in whom he had tied the External Iliac Artery on the left side for Femoral Aneurysm, and also the Femoral Artery on the right side for Popliteal Aneurysm. He applied a double ligature on the external iliac by the extra-peritoneal method. The patient was able to resume his work in two months, and had had no circulatory disturbance.

Dr. ABRAM showed two cases of Beri-beri. The patients were the captain and mate of a Norwegian barque just arrived in Liverpool after being some two months on the coast of Brazil. The captain showed the typical signs of neuritis, most marked on the legs. The mate still had muscular tenderness in the calves, but the knee-jerks had returned. Both gave a history of œdema, which in the captain was limited to the legs and in the mate was general. Both had had palpitation and dyspnœa, and the captain had severe vomiting for five days. Inoculations from the blood were negative. No malarial organisms were found on examination of fresh blood. Rapid improvement was taking place under general tonics and regular massage.

Mr. BANKS related the case of a boy seven years of age who for some little time had suffered from irregularity of the bowels with abdominal pain after going to stool. A week before Mr. Banks saw the case the child complained of pains all over him and general malaise. Two days later he had severe abdominal pain and vomiting, and from that time no

proper motion or any flatus had passed. An enema was given which brought away blood and mucus. On admission into hospital four days later the abdomen was moderately distended, and there was complete obstruction. A fulness could be felt to the right of the umbilicus, which might be due to colitis or appendicitis, but with the history of the passage of bloody mucus it was thought to be an intussusception. The following day an anæsthetic was given; the abdomen then relaxed and a sausage-like swelling could be plainly felt to the right of the umbilicus. The abdomen was opened in the middle line and an intussusception of the ileum was found about eighteen inches from the cæcum. The bowel was black and gangrenous, so it was cut out, and the ends were joined by a Murphy's button. The boy rallied well and was able to take a fair amount of nourishment, his progress being slow but steady. The button was passed on the twenty-first day, and he returned home on the thirty-eighth day.

Mr. GEORGE HAMILTON related the case of a man aged thirty-three years who had suffered from symptoms of subacute Intestinal Obstruction due to a Carcinomatous Stricture in the centre of the Meso-colon. Four inches of colon were removed, the ends being approximated by the inch and a half Murphy's button. The patient made an uneventful recovery; the button was passed on the twenty-fourth day.

Mr. PAUL read a paper on Excision of the Rectum for Cancer based upon fourteen cases. Of these, three were examples of simple low excision as advocated by Mr. Harrison Cripps, two were the same with part of the vagina, three were high operations after Kraske with approximation, and the remaining six were high operations without approximation. The amount of bowel removed varied from two to eight inches. The mortality was 14 per cent. Six had died since operation, the average duration of life being one year and eight months. Six were living at periods varying from one year and a quarter to upwards of ten years. He thought the operation very much more successful than for advanced cancer of the mouth, and strongly recommended the high operation first suggested by Kraske, but independently performed a little later in this country by Alexander. Mr. Paul showed a new rectal truss which he had had made for patients who subsequently suffered from incontinence or prolapse.—Dr. ALEXANDER congratulated Messrs. Banks, Hamilton, and Paul on the advances in surgery indicated in their papers. He thought that Mr. Paul's results were excellent, and the prolongation of life undoubted, and not only was life prolonged, but it was life worth living. He thought that the patient was far more comfortable and more benefited by excision than by colotomy. He had a case working for ten years after Kraske's operation, and one patient rejected in London and sent home to die had nearly three years of comfort and was able to shoot and fish before recurrence carried him off. In his experience the disease was much more common in males than in females.—Mr. PAUL thought that many children could not bear the removal of a large piece of bowel as in Mr. Banks' case, and one usually had to choose between the establishment of a fæcal fistula and the more simple and safe operation introduced by Mr. Barker. With regard to Mr. Hamilton's case Mr. Paul thought that there was reason to hope for a good result, not only in the first instance but later, as these small ring strictures were less malignant than most other forms of cancer. He thought Murphy's button the best method of approximating large intestine, and would advise its employment in colectomy when the growth was small and the symptoms of obstruction not severe; but when the growth was advanced or the abdomen considerably distended he thought it much wiser and safer to bring the ends of the bowel out and approximate later.—Mr. BANKS said that the great advantage of Murphy's button is that time is saved, which is often the principal element in success.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Mania following Pleurisy.—Operations on the Mastoid Process.—Dilatation of the Cervix Uteri.—Flexor Spasm of Hand.—Exhibition of Cases and Specimens.

A MEETING of this society was held on Feb. 1st, Dr. E. WEST SYMES, President, being in the chair.

Mr. BATES read the notes of a case of Acute Mania following Dry Pleurisy in a girl aged twelve years. The maniacal symptoms came on the day following the reduction of the temperature to normal. The maniacal symptoms quickly gave way to treatment with sedatives, but the delusions were a week before they disappeared. The family and previous history pointed out instability of the nervous system in the patient, and accounted for the post-febrile mania following what was only a mild attack of pleurisy.—Dr. BARBS thought that mental disturbances frequently followed febrile conditions, no matter from what cause arising, as also after surgical operations and in cardiac cases.—Mr. WARD, in discussing the analogy of Mr. Bates's case with cases following operations, noted the youth of the patient. He had never met with a case of mental disturbance in one so young.—Dr. CHURTON used morphia hypodermically unless contra-indicated, and then immediately administered chloroform for two or three minutes in cases of acute delirium, gradually increasing the dose of morphia until a continuous sleep of six or eight hours was obtained.—Mr. Godfrey Carter, Dr. Gordon Black, Dr. Mantle, the President, and Dr. Bedford Pierce (who mentioned a case of mania accounted for by constipation) also took part in the discussion.

Dr. ADOLPH BRONNER read a paper on the Various Methods of operating on the Mastoid Process and the Indications for the Same. He described the original operation of Schwartze, which was practised from 1873 to 1889, how Kustner modified the operation by removing also the posterior wall of the external meatus, and how Bergmann removed also the pars epitympanica, or upper wall of the external meatus. Stacke in 1890 altered the operation considerably. He pulled out the whole of the cutaneous external meatus and opened up the attic and mastoid antrum from the external meatus. He used a bent chisel and protector. The middle ear, attic, and mastoid antrum were thus made to form one large cavity. This cavity was then lined with the cutaneous external meatus. Schwartze modified this operation by opening the antrum first, and then from this cavity he removed the posterior wall of the external meatus and the pars epitympanica. He only removed the posterior part of the cutaneous external meatus, and lined the newly formed cavity with this part, cut into two flaps. In cases where the attic was diseased Stacke's or Schwartze's modified operation was the most satisfactory. The chisel and mallet were now universally used. Macewen preferred the rotatory burr.

Dr. BRAITHWAITE read a paper on a point in the Dilatation of the Unimpregnated Cervix Uteri. The point was that when the unimpregnated cervix was dilated (for whatever purpose), it was much easier and more satisfactory to do it on the last day of the menstrual period or when the discharge had just ceased. At this time the work was already done to some extent, and the tissues were so soft and elastic that dilatation could be accomplished to almost any extent in about twenty minutes, provided the patient was under an anæsthetic.

Dr. CHURTON showed a girl aged twenty, tall and well formed, but with small cranium and rather childish manner, not robust, who had constant Flexion of the Wrist and Fingers, the thumb being usually laid across the palm. Her father died from phthisis aged thirty-two, a sister aged twenty-two suffered from phthisis, and a sister aged eight from diabetes. During childhood she had frequent nightmare. After one of such dreams, followed by a severe screaming fit, at the age of ten, she was found to be hemiplegic on the right side, her mouth was twisted, it is said, and saliva ran from it. Speech returned next day. Chorea occurred on the left or sound side in a few days, and lasted some weeks. The right leg recovered in a few months. She could always move the right shoulder. When first seen the legs were equal, and she had slight right facial paralysis. The left part of the face was the first to move. The bones of the right arm and hand were equal to those of the left; the muscles were smaller, but reacted to weak coil shock, also normally to cells KCC > ACC. There were no tremors or athetosis. The flexion was easily overcome usually, but was maintained during sleep and when the wrist was forcibly flexed (not always). When asked to do so she extended the fingers and thumb, almost completely at first, and afterwards much less readily. The pupils showed the trace of dilatation often observed in functional cases.

The following cases, pathological specimens, &c., were shown:—

Dr. BARBS: 1. Primary Carcinoma of Liver. 2. Patient suffering from Paralysis of the Right External Rectus who had recently recovered from paraplegia following influenza.

Dr. ADOLPH BRONNER: Case in which the Carotid had been tied for Pulsating Exophthalmos.

Dr. TREVELYAN: Case of removal of Malignant Growth from the Larynx. (Operation performed by Israel of Berlin eight months ago.)

Mr. MAYO ROBSON: 1. New form of Œsophageal Bougie. 2. Case of Caries of the Spine, with twelve months' Paraplegia. (Laminectomy three years ago.) Recovery. 3. Case in which the Radius had been removed for Necrosis. 4. A Pencil removed from a Girl's Bladder after a fortnight's impaction.

Mr. LITTLEWOOD: Hydronephrotic Kidney removed by Abdominal Nephrectomy.

Mr. JESSOP: Extensive Epithelioma of the Penis.

Mr. HARTLEY: Extensive Epithelioma of the Penis.

Dr. BAXTER TYRIE: Hydatid Cyst of Abdominal Wall with Microscope Preparation of Hooklets.

Dr. T. WARDROP GRIFFITH: Paralysis of Deep Branch of Ulnar Nerve.

EDINBURGH OBSTETRICAL SOCIETY.

Extra-uterine Gestation.—Methods of Artificial Respiration in the New-born.—The Mechanism of Labour.—Exhibition of Specimens.

A MEETING of this society was held on Feb. 13th, Dr. A. H. FREELAND BARBOUR, President, being in the chair.

Dr. HALLIDAY CROOM read a paper on Two Cases of Extra-uterine Gestation operated upon at the fourth month. The first case was that of a primipara aged twenty-seven years who had not suffered from any pelvic trouble previously to this illness. She began to suffer from irregular hæmorrhages with pain in the abdomen and gradual development of an abdominal swelling. On bimanual examination a hard mass was palpated lying to the left side of the uterus and immobile; the sound passed three and a half inches into the uterus. At the operation the abdomen was opened in the middle line (he would have now preferred a lateral incision) and the sac exposed. On touching this with the knife the bleeding was so profuse that it was evident this was the site of the placenta, and it was cut through with the thermo-cautery. The clot was cleared out and the placenta detached, but no fœtus or cord could be found. On passing the finger towards the pouch of Douglas a second sac was found, but it only contained blood-clot, with no fœtus. The sacs were washed out, the opening stitched to the abdominal wall, and the cavity packed with iodoform gauze. The patient suffered severely from shock, but afterwards made a good recovery. The placenta was found microscopically to have the villi very much enlarged and some with myxomatous degeneration. The case was one of tubal pregnancy, with rupture into the broad ligament; the fœtus had disappeared owing to the myxomatous degeneration of the chorion, as similarly occurs in intra-uterine cases. The second case had suffered from pelvic trouble for two years and recently from premenstrual pain and also during the flow. She had missed two periods. When lifting a heavy weight she felt something give way and developed symptoms of collapse, with slight vaginal hæmorrhage. Two other similar attacks occurred. A swelling was found on the left side and behind the uterus; decidual membrane was passed from the vagina. As the patient was very weak the operation was delayed. Another attack of collapse occurred and the abdominal swelling now extended to one inch above the umbilicus. It was decided to operate, when the sac was found adherent to the abdominal wall and contained blood-clot, which was turned out, and a second sac found higher up. This contained the fœtus, of three and a half to four months' development, and the placenta, which was easily stripped off. The sac was washed out and packed as before. The case was evidently extra-peritoneal. The patient succumbed.

Dr. R. C. BUIST read a paper on Methods of Artificial Respiration in the New-born. He analysed the different systems that have been advocated by different writers. Schultze's plan had been attended by fracture of the clavicle, and death had occurred during its demonstration on a fœtus. Dr. Buist described a method which he had practised with success. The child was placed face downwards on the hand of the practitioner, with its head away from him, and artificial respiration was effected by rolling it on to the other hand, the head then hanging backwards, and the sides of the thorax being compressed by the fingers as the child was being transferred from the one hand to the other. Perseverance was of great consequence. One case was resuscitated one hour after apparent death.—The PRESIDENT mentioned a case where fifty minutes elapsed before inspiration occurred and another twenty-five minutes before respiration was established.—Dr. FERGUSON advocated mouth-to-mouth insufflation (a handkerchief intervening), the nostrils being compressed and pressure kept up over the abdomen to prevent air from passing into the stomach.—Dr. CULLEN considered that pressure of the larynx backwards was sufficient to prevent this, and had seen cases where insufflation had quickly succeeded when Schultze's method had failed.

The PRESIDENT read a paper entitled a Study of the more recent Frozen Sections in their Bearing on the Mechanism of Labour and the Third Stage. Plates had been published of twenty-two sections showing the anatomy of labour, excluding pregnancies. In two cases of pregnancy the frozen section showed that the peritoneum did not descend into the pelvis in front. In two cases, also of pregnancy, the bladder was found to be partly above the brim of the pelvis. As regards the mechanism, it was found that some cases had the long axis of the uterus parallel to the spine, in others it was perpendicular to the axis of the brim. It seemed probable that the former position was that found in the intervals between the pains; the latter during the pain. Zweifel stated that the retraction ring coincided with the os internum, there thus being no lower uterine segment. But in order to form a bag of membranes these must be stripped off to a considerable extent. Zweifel's view seemed incorrect. In these frozen sections the retraction ring was not always recognisable. Zweifel, as a result of his study, considered that internal rotation was brought about by the varying thickness of the soft parts in the different planes of the cavity; but he made no reference to the direction given to the vertex by the pelvic floor. In all the sections with one exception the chin was apposed to the sternum, the exception being an occipito-posterior case, where there was divergence to one inch and a quarter. As a criticism it could be stated that flexion was not a motion, but an attitude, and that flexion was not an integral part of labour.—Discussion on this paper was deferred till the next meeting.

The following specimens were exhibited:—

Dr. KYNOCH: An Ovarian Fibroma with the Uterus and Appendages removed post mortem from a patient who died from another disease; microscopically the tumour was composed of white fibrous tissue.

Dr. R. C. BUIST: A Placenta with an Old Hæmorrhage between the Membranes and the Placenta in proximity to the Cord. There was no specific history in the mother, and no symptoms relating to the hæmorrhage could be found.

Dr. CROOM: A Myxoma of the Chorion removed from a patient aged fifty-four.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Case of Locomotor Ataxy from Injury.—Small-pox.—Some Small-pox Temperatures.

A MEETING of this Section was held on Jan. 11th, Dr. W. G. SMITH, President, being in the chair.

Dr. CRAIG exhibited a patient and read a short paper on Locomotor Ataxia due to Injury. A year ago the man fell while revolving on a horizontal bar and lost consciousness for about twenty minutes. Although the injury seemed slight, yet within a few months his arms and legs were markedly ataxic, cutaneous sensibility was lost in the limbs and, to a less degree, in the trunk, the knee-jerk was gone, and gastric and rectal crises were complained of, but no ocular symptoms appeared. In the absence of cerebral or ocular symptoms, and with a history of the rapid appearance of other symptoms, could the case, he asked, be called one of true locomotor ataxia?—The PRESIDENT said that this was a case in which the term "locomotor ataxia" was applied in a clinical rather than a pathological sense. It was hard to bring it into line with those cases commencing with affections of the cerebral nerves. The ordinary forms were cerebro-spinal, but in this case all the symptoms were spinal.—Dr. FINNY remarked on the rapid loss of sensation which happened in this case. One might suppose it to be a change in the

posterior columns of the cord also involving the posterior nerve roots. He thought that the wasting of the muscles was out of proportion to the length of time that the man had not used them.—Dr. PARSONS said that some of the patient's symptoms might perhaps be functional rather than organic. However, there was no doubt he had marked incoördination.—Dr. CRAIG briefly replied, stating he agreed with the President as to the difficulty of regarding this case as an ordinary one of locomotor ataxia.

Dr. O'CARROLL read a paper on the Diagnosis and Prognosis of Small-pox, based upon the experience of the cases treated in the Hardwicke Hospital during the present epidemic in Dublin and the much smaller epidemic of 1887-88. With regard to diagnosis the main difficulty occurred with cases of varicella simulating variola, or *vice versâ*. In cases otherwise similar, and supposing the diagnosis to be made at one visit, the points which favoured the probability of the case being one of varicella were the following: the fact of the patient being a child (provided that good vaccination marks were present); the eruption being greater on the trunk than on the face; the eruption being more or less multiform, even in the same region, papules, vesicles, and crusts being seen together; the abscence of papules on the horny skin of the palms and soles. As to prognosis, Dr. O'Carroll believed there was hardly any acute disease in which it was so uncertain until convalescence was established.

Dr. H. C. DRURY exhibited a series of Temperature Charts of Variola Cases. He divided them into three classes: (1) those with primary and distinct secondary fever; (2) those in which the initial fever was continued into a period of febrile state, of longer or shorter duration, but without any distinctive character; and (3) those in which the high initial temperature, lasting three or four days, was the only one seen. He pointed out that from a large number of observations he was unable to draw any conclusions from the temperature as to the severity of the rash, general symptoms, or length of time till convalescence was complete, as all three classes of temperature were seen in unvaccinated as well as vaccinated cases.—Dr. DAY said that in the early diagnosis between small-pox and chicken-pox the eruption of the throat was an important point. In the former a papule might be present on the soft or hard palate or on the tongue. In chicken-pox it was a vesicle.—Mr. HORNE said that he did not see why a patient suffering from small-pox should be any more liable to abortion than when suffering from any other fever. It was all a matter of temperature. Provided this did not exceed 104° F. the danger of abortion was not greater than in the other fevers. He thought that the eruption on the throat was a very important point in the diagnosis at an early stage.—Dr. PARSONS mentioned three cases. The first was that of a woman who had been treated for scarlet fever at the Cork-street Hospital, and who on recovery had been sent to one of the convalescent homes. Three days afterwards she fell ill again, and shortly after the eruption of small-pox appeared. Another was that of a little unvaccinated child who one morning was noticed to have a papular eruption on his body. The nurse stated that the child had seemed quite well on the previous day. He had considerable difficulty in deciding whether it was a case of chicken-pox or small-pox, but the abundance of the rash and the rise of temperature decided him in favour of the latter. The third case was that of a man who walked into the dispensary. He had been feeling unwell for three or four days, but did not give up work. He had a well-marked papular eruption but no rise of temperature, and affirmed that he then felt quite well. He had not been revaccinated, but had three distinct old marks.—Dr. J. W. MOORE said that the way the eruption appeared in varicella was important. Very often there was no papule, but within a few hours a clear vesicle appeared on the skin. He mentioned a case of scarlet fever which developed chicken-pox.—Mr. A. N. MONTGOMERY said he was pleased to hear that no well revaccinated case had been admitted to the Cork-street Hospital suffering from small-pox. He said that although the vesicle in a revaccinated person might, sometimes on the eighth day, resemble a primary vesicle, yet the material obtained from it should not be used for the purpose of vaccination or revaccination. As showing the necessity of a very careful search for vaccination cicatrices being made in patients suffering from modified small-pox before they were recorded as unvaccinated, he alluded to such a case which had come under his notice some years ago, in which he found a well-marked vaccination cicatrix on the posterior aspect of the arm which had been overlooked.—The PRESIDENT said that the difficulties of the diagnosis between variola and varicella were perhaps exaggerated. He also said that it was quite well established that the vesicles of chicken-pox were multilocular and were often umbilicated. The greater frequency of umbilication in variola depended on, first, the less acuity of the pathological process, and secondly, because the epithelial cells were œdematous and underwent what was described as a "ballooning degeneration." They became distended and the nuclei were broken up.—Dr. O'CARROLL, in reply to a question, said that several cases of children under ten years of age had been admitted to the Hardwicke Hospital, but that none of the vaccinated ones had died. All the people connected with the hospital had been revaccinated at the commencement of the epidemic, but four months afterwards a laundry maid on whom the vaccination had caused a sore arm was admitted to the wards suffering from a rash he regarded as that of small-pox.

Reviews and Notices of Books.

Colour Vision. Being the Tyndall Lectures delivered in 1894 at the Royal Institution by Captain W. DE W. ABNEY, C.B., D.C.L., F.R.S. With Coloured Plate and numerous Diagrams. London: Sampson Low, Marston, and Co. 1895. pp. 231.

THE work is divided into fifteen chapters, of which the earlier are devoted to a very brief description of the Eye and of the Solar Spectrum, the account of the former referring chiefly to the retina, and of the latter to the circumstances which have led physicists to accept red, green, and violet as probably the three primary colours from which the rest can be formed, and to reject yellow and blue. The experiments of Clerk Maxwell and the hypothesis of Hering are given in some detail, and two chapters are devoted to the Modes of exhibiting Colour Blindness: first, by the spectrum, and secondly, by making mixtures of colours with rapidly rotating colour discs. The results of experiments in regard to some of these matches are very curious. Thus, it is found that both for normal eyes and for colour-blind eyes 118 parts of red with 146 of green and 96 blue give the same grey as results from a mixture of 75 parts of white and 285 parts of black; but in completely green-blind persons the following mixtures gave also the same tint of grey: 251 parts of red and 109 parts of blue were equal to 62 parts of white and 293 of black and 277 green + 83 blue = 107 white + 253 black. Captain Abney then discusses the luminosity of the spectrum in normal and colour-blind persons respectively, and shows that it is subdued in the latter group. The normal yellowish tint of the fovea centralis modifies the sense of colour to some extent, as may be shown by comparing exact matches at the point of fixation with those the images of which fall a few degrees towards the periphery. When the luminosity is gradually reduced the various colours in great measure disappear, a person with normal vision passing through a stage of red-blindness as the intensity is diminished before he arrives at absolutely monochromatic vision. Captain Abney points out that the curious colour of a moonlight landscape is entirely accounted for by this fact. White light becomes greenish-blue as it diminishes in intensity, and the reds an yellows, being reduced or absent, are not reflected by surrounding objects. Hence moonlight is cold, whilst the sunlight is warm owing to their presence. The loss of colours in flowers as night draws on may be easily followed. Thus orange-coloured flowers may be plainly distinguished, whilst a scarlet geranium appears black; green grass will be grey when the colour of yellow flowers may yet be just visible. The eye requires the lapse of a considerable period before it becomes accustomed to darkness and attains its highest degree of sensitiveness, and no experiments on the extinction of light, or rather on the perception of the feeblest amount of light, were found to be satisfactory till after ten

or twelve minutes had passed. In yet another set of experiments Captain Abney determined the distance at which, when cast on a white screen, the different colours of the spectrum of the same luminosity were no longer visible, and found that pure red was invisible at 58 feet, orange 142 feet, green 550 feet, and violet 1000 feet. In accordance with this the reduction of intensity of white light, which when of ordinary brightness is warm, would make it colder, for the red would disappear, and finally the residue of light just before extinction would become a cold grey, due to the absence of all colour. A chapter is devoted to Tobacco Blindness, and the author dwells on the circumstance that such blindness for colour may be the result of excessive consumption of tobacco at any period of life and consequently that those who are entrusted with the care of life through the recognition of coloured signals should be subjected to recurrent examination. The remaining chapters are chiefly devoted to Holmgren's Method of Testing Colour Vision by means of Wools, and to the consideration of Contrast Colours. Captain Abney declines to allow himself to be quoted as a partisan of either of the two rival theories of colour, but on the whole is inclined towards the Young theory. The treatise, brief as it is, may be regarded as supplying an interesting and valuable contribution to the difficult and complicated subject of colour vision. The simple forms of apparatus and general testing he employed in these numerous experiments are depicted, and it is obvious that there is ample scope for further research.

A Compend of General Pathology and Morbid Anatomy. By H. NEWBERY HALL, Ph.G., M.D. Edinburgh and London: Young J. Pentland. 1894.

IT is doubtless difficult to condense within a small compass the salient facts of a wide subject, and for that reason it is incumbent to exercise much discrimination when appraising the value of a book compiled with this intent. Indeed, the whole system of books of this class is open to grave objection, since it is a more or less direct encouragement to the student to rest content with the barest synopsis and does little to excite his interest or his reasoning powers. Nevertheless, such a synopsis drawn up with accuracy and on a definite plan may prove of advantage when used as a supplement to wider studies. The danger is lest it be substituted for the ampler text-book and laboratory guide. As regards the particular compend before us, although it is drawn up on systematic lines and includes a reference to every notable pathological condition, it is certainly lacking in accuracy in some of the descriptive matter. To describe "cancer" as "a system of channels in pre-existing connective tissue filled with continuous columns of epithelial cells," and to state that the "growths are of mesoblastic origin" can hardly be said to represent the teachings of science; whilst it is surely misleading to say that "pernicious anæmia" is a "condition resembling both chlorosis and leukæmia, there being the characteristic changes in the blood of chlorosis, while there is an increase in the number of white blood-cells and the changes in the bone marrow characteristic of leukæmia." Nor can we think the term "fibrous pneumonia" a good substitute for "interstitial" pneumonia. The illustrations are taken from the standard works of Rindfleisch, Billroth, Zeigler, Woodhead, and others.

The Year-Book of Treatment for 1895: a Critical Review for Practitioners of Medicine and Surgery. London: Cassell and Co.

THE eleventh issue of this valuable compilation of knowledge has made its welcome appearance. It is arranged on the same lines as the previous editions—i.e., it is divided into sections, each section being separately treated by a special contributor. Three new names appear among the contributors to this year's volume: they are those of Dr. Coupland, Mr. Rose, and Dr. Whitelegge. In such a compilation as this book it would be impossible to more than superficially allude to the mass of valuable information which it contains. It is a collection in a readable form of all the chief advances which have been made in the medical world during the past year, thus concentrating a large amount of knowledge which would otherwise be scattered and unattainable by the majority of the medical profession. There is a general spirit of hopefulness imparted through the book which would lead us to believe that great advances are really being made against the diseases which surround us. In the chapter on General Medicine there is an interesting account of the treatment of cardiac disease by exercises and baths which was first introduced at Nauheim, but which has not until quite lately attracted much attention in this country. The tuberculin treatment of phthisis would seem to be flourishing in certain parts. It is said to have been used with success in Egypt, and Barbour of Monteagle, Tenn., is a strong advocate of this treatment, recording its effect upon himself as well as on numerous others; he gives good accounts in many cases, but wisely accords a large amount of credit to the climatic influences the patients were under and to the judicious hygienic and dietetic treatment they were submitted to. An important change in the treatment of Diabetes is taking place by allowing the patients to be on a less restricted diet than formerly. The chapter on Diphtheria is up to date with a full account of the antitoxin treatment, and although leaning largely towards its beneficial effects the author is wisely not dogmatic on the treatment, which may still be said to be in its infancy.

In the division on general surgery there is a good chapter on Surgery of the Spine and Spinal Cord, in which a short summary of Dr. Thorburn's lectures at the Royal College of Surgeons of England is given. There is also an interesting table of cases in which the Gaserian ganglion has been removed. In the department dealing with surgical diseases of children Mr. Edmund Owen believes brighter days to be in store for cases of Acute Intussusception, which at present have such a high fatality. He urges the expediency of considering the case as one for operation from its commencement, and discountenances the treatment by massage, inflation, and injection. By this superficial sketch of the book it will be seen that it is at once interesting and useful, and to the busy practitioner it is invaluable as an aid to keeping up with the times.

ROYAL INSTITUTION.—Lord Rayleigh, F.R.S., Professor of Natural Philosophy in the Royal Institution, will deliver a course of six experimental lectures on Waves and Vibrations, at the institution, on Saturdays, March 2nd, 9th, 16th, 23rd, 30th, and April 6th. The same lecturer will deliver the Friday evening discourse on April 5th, when the appropriate subject will be Argon, the newly discovered Constituent of the Atmosphere.

THE ÆSCULAPIUS LODGE OF FREEMASONS.—An ordinary meeting of the Æsculapius Lodge was held last week at the Café Royal, Regent-street, and notwithstanding the inclement weather there was a good attendance. Mr. Leonard Wilde, M.D. Durh., M.R.C.P. Lond., was admitted to the second degree. Mr. George Herschell, M.D. Lond., was duly proposed as a candidate. The lodge decided to entertain all medical masons that may attend the meeting of the British Medical Association in London in August next; a sum was unanimously voted for that purpose. Dr. G. Danford Thomas generously offered the lodge the use of the Portman Rooms, which offer was accepted.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 23, 1895.

THE annual report of the Local Government Board is becoming more and more bulky as the work of that department goes on increasing, and nothing more than a very summary account of it can be embodied in any ordinary review. Over fifty pages are now taken up with matter relating to county councils and to the Local Government Act of 1894, which is all comparatively new material. Coming next to questions of Poor-law, it appears that during 1893 there was an increase of 4·9 per cent. in the number of paupers as compared with 1892, the actual proportion of paupers being at the rate of 27·6 on every 1000 of the population for England and Wales as a whole; that rate varying in different counties from 45·8 in the agricultural districts of Norfolk to 19·4 in the busy manufacturing districts of Lancashire. At the close of the year guardians did not, with rare exceptions, anticipate any such increase in pauperism as to involve them in any difficulties. The expenditure on the relief of the poor during 1893 amounted to 6*s.* 3½*d.* per head of the population, and the cost during the year per head on the mean number of paupers was £12 2*s.* 11½*d.*, a slight increase on previous years, the increase being mainly as regards in-door paupers. In the metropolis the corresponding amount was £25 8*s.* 2½*d.* Dealing next with the concerns of the Metropolitan Asylums Board, it appears that that body is receiving a steady increase in the number of notifications of infectious diseases. In 1891 the total notifications were 20,818 in number; in 1892 they rose to 37,784; and in 1893 they reached 56,425. The admissions to the Boards hospitals during 1893 numbered 18,674.

The year 1893 exhibited an astounding increase in the amounts borrowed with the sanction of the Local Government Board for purposes more or less directly concerned with public health administration. The highest amount hitherto borrowed by urban and rural authorities in any one year was some four millions sterling in 1892, but in 1893 the sum reached £7,266,516, not far from seven millions going to urban authorities alone. And, in addition to this, over four millions were raised by town councils and sanitary authorities under special Acts of Parliament. Local loans thus bid fair, even more than ever, to become a matter of Imperial concern. Already those sanctioned by the Local Government Board alone since 1871 exceed sixty millions. A substantial portion of this account will, however, have been paid off by now. Amongst defaulting authorities some have had to be summarily dealt with. Thus Mill Hill, in the Hendon district, has been required to provide a system of sewers within six months, and Cheam and Cuddington, both in the Epsom rural district, have been somewhat similarly dealt with. Local by-laws continue to be largely approved. In 1893 no less than 504 series of by-laws were made by sanitary authorities. If these authorities only insisted strictly on the terms of their codes being complied with in such matters as building operations we could feel pretty sure that a golden era was before us in the matter of ordinary dwelling accommodation; but there seems to be no power to require the enforcement of by-laws, neither can the central authority compel authorities to make by-laws. Twenty additional authorities made new regulations with respect to dairies, cowsheds, and milkshops during 1893, a matter as to which we in England have much need to make further progress.

In the matter of the Sale of Food and Drugs Act it appears that during 1893 37,233 articles were submitted to analysis, and of these, 4793, or 12·9 per cent., were found to be adulterated. Spirits take the lead as regards the number of adulterations discovered per cent. of samples examined; next comes milk, 14·9 per cent. of the examples being adulterated; and drugs stand at 11·3 per cent. The question of milk adulteration is discussed at length in the report, and experiments carried out by the authorities at Somerset House show that a number of difficulties have to be contended with. In their experiments the officials always saw the cows milked, and yet milk that was thus genuinely the actual product of presumably healthy cows varied in many important respects. Thus, the total solids ranged from 10·3 to 17·2 per cent. Amongst the other subjects dealt with in the volume are those of vaccination, public health inspections, cholera, and London water-supply. These we shall either deal with separately, or reserve our comments until the issue of the report of the Board's medical officer, in which the several matters are dealt with more in detail.

THE International Congress to be held in Florence next year on the Protection and Management of Childhood is evoking, especially on the Continent, an interest not confined to the societies officially devoted to the subject. The public press, not only lay but medical, is rehearsing the more prominent aspects of the agenda, and already "quite a literature" is being amassed in preliminary discussions on the topics to be taken up. Books even are brought out in anticipation of the Congress, and among these there are some which cannot fail to have a wholesome influence on its deliberations. We may mention the "Minorenni Delinquenti" (juvenile delinquents) of the Cavaliere LINO FERRIANI, a distinguished Italian jurist, as covering nearly the whole ground to be occupied by the "Congressisti"; while a place even more authoritative in the same connexion must be given to the address recently delivered in Turin by Professor CESARE LOMBROSO on the "Dimostrazioni Antropologiche applicante alla Pedagogia" (Anthropological Demonstration applied to the Upbringing of Youth).

Signor FERRIANI approaches the subject from the forensic and magisterial side, and has much to tell us of the factors, moral and material, which poison the budding human organism on life's threshold. It is in the proletariat that these factors have most unrestricted play, and in which the inevitable results appear in their most significant colours. In the majority of cases the "minorenne delinquente" inherits a more or less absolute want of moral sense, a defect which is aggravated by the vagabondage, the idleness, the hand-to-mouth existence,

and the thousand and one disadvantages in which the "fight for life" in the lowest stratum of society is carried on. Of the 2000 juvenile delinquents who passed under his eye and whose careers, for a time at least, he was able to follow up Signor FERRIANI found the prehensile instincts those in which the vast majority became amenable to the law, crimes of violence, even to the shedding of blood, being next in frequency. Among the youth of the more favoured orders the same proportion between the two classes of offence prevailed, though from causes quite intelligible (the success of parents in hushing up the guilty act, for example) it was found difficult to arrive at anything like certainty as to the amount of criminality existing in that social stratum. Still, where it was detected the etiology was similar, if not identical, depraved organisation, inherited in the first instance and not duly controlled or antagonised in the second, being the *fons et origo mali*.

Crime having its root in psycho-pathological tendencies, conditioned by physical organisation and fostered by early influences or environment, Signor FERRIANI proceeds to review the traditional mode of dealing with it. The penal systems still in force he condemns absolutely, a condemnation coming with all the greater effect from one who does not profess to be a medically-trained anthropologist, but simply a lawyer and magistrate judging from experience. The moral rehabilitation of the "minorenne delinquente" he regards as impossible under the discipline of gaol or reformatory, particularly as practised abroad. The "first offender," after the judicial period served in these establishments, emerges a hardened and thoroughpaced desperado, lost to all self-respect and full of vindictive feeling against the society from which he is excluded. Small chance has he of moral recovery or social rehabilitation if relegated back to the parents whose own depravity or culpable negligence drove him, or let him drift, into crime. Nay, Signor FERRIANI'S experience includes many cases in which the parents themselves exaggerate their child's offence so as to procure for him a more exemplary punishment and get him off their hands for a longer period. Either way, the future of the "minorenne delinquente" is the reverse of a hopeful one; and, while Signor FERRIANI cautions us against the roseate colours in which prison governors or penitentiary directors are apt to portray the effects of their discipline, he bids us hope for little improvement in the criminal classes, or in prevention of crime at its source, under any system which does not take account of physical organisation, psycho-pathological tendency, and early upbringing medically inspired.

At this point he practically makes over his case to Professor LOMBROSO, whose discourse—soon, we understand, to be published in a permanent form—attracted one of the largest and most intelligent audiences ever assembled in the sub-Alpine capital. Many of his hearers were schoolmasters, anxious to gather from him his suggestions as to the best mode of "educating" (not merely "instructing") the youthful mind. His standpoint was throughout the anthropological, illustrated by practical hints as to how to gauge the capacities, the strong faculties and the weak ones, of the young pupil. ANFOSSI'S "anthropometer," he showed, could determine with minutely approximate accuracy the proportion constantly existing in normal individuals at successive periods of life between stature and weight; while the dynamometer could measure the muscular force, and the spirometer give the quantity of air the individual can exhale—the "capacità vitale," as he termed it. On the more difficult ground of the cranial capacity he showed how, on the larger or lesser quantity of brain and on its distribution, depends the greater or smaller intelligence of the human subject, and demonstrated by a series of casts how the cerebral weight can be reached through measurement of the cranium itself. But he laid still more stress on the study of the face, from which, by training and experience, the anthropologist can form conceptions of character rarely, if ever, at fault. From the broad outlines of "physiognomic diagnosis," as Professor LAYCOCK used to term it, he proceeded to "facial anomalies," such as are met with in criminals or in moral weaklings—the "mandibole enormi," for instance, the ears like handles (*orecchie ad ansa*), the protruding zygomata, the "faccia asymmetrica," the strabismus, the lips of exceptional thinness (*assottigliate*), and such like—and pointed out how the criminal is invariably "mancino"—wanting in something—even as a child: be it the sense of colour (*senso cromatico*) or obtuseness to touch. From an analysis of physiological signs he entered on those in the moral sphere, and illustrated the common defects of juveniles—proneness to fibbing (*bugia*), obstinacy, anger pushed to ferocity, overbearingness, idleness, and vanity—all defects which in the "bambino onesto" (morally sound child) disappear with age, while in the "bambino criminale" they remain. It is the latter that the duly qualified educator should separate from the others, so as to prevent the contagion that insensibly deteriorates the sound when associated with the unsound. Were such a sifting process universally practised, by the effective coöperation of the anthropologist with the educator, or by the educator anthropologically trained, the infiltration of society with criminal elements would be checked at its source, while the unsound juvenile would have a chance of being rescued before he drifted into the "minorenne delinquente." Simple moral inculcation, on which "pastors and masters" have hitherto relied for the rehabilitation of peccant youth, Professor LOMBROSO believes to be quite ineffective; but "la morale pratica"—the constant example and contagion of good conduct and sound initiative normally carried to healthy issues, such constituting the system of the new or anthropological education—could not fail to build up a generation morally superior to any that had gone before. Professor LOMBROSO, we are told, carried the feeling of his audience with him, and no doubt there is much to be said in favour of such an educational system as that which he has so ably outlined. One thing is certain: that far-reaching reforms must modify the traditional mode of educating youth—particularly proletariat youth—if deterioration, mental as well as physical, is to be obviated at its source. It is upon some such scheme of scholastic reform that debate will principally turn at the approaching International Congress. Finally we note with interest that, while Continental innovation will be directed mainly to the sifting process described by Professor LOMBROSO, the British contribution towards the same end will take the form of combating "over-pressure"—

the exaggeration of that discipline which abroad is found to err in other ways than "excess."

THE Parish Council elections have resulted in several instances in medical practitioners being chosen to occupy seats upon these newly formed bodies, and we welcome the fact, not only as evidence of the confidence and esteem in which our professional brethren are generally held, but also as an omen of good for the success of the new institutions. It is, we believe, in the power of medical men to contribute very largely to this success. There are special reasons for this opinion, for the medical practitioner established in a rural locality possesses qualifications which, speaking generally, may be said to be conspicuously lacking in the case of most of his neighbours. In the first place, he possesses an intimate knowledge of the circumstances of his poorer neighbours such as few among the local gentry can acquire, and he not infrequently enjoys their confidence in a measure that is denied to other residents of his own social position. In this sense he may be said to be one of themselves; but, on the other hand, he is free, as the result of his education and associations, from those prejudices and ties which make it difficult to understand how representative institutions are to take root in rural parishes. The want of initiative and the absence of a habit of coöperation which distinguish the dwellers in the country from the dwellers in the town must seriously impair the efficiency for the purposes of local government of the rural communities and of their representative bodies. Hence the importance of the influence which men trained in the habits of collective action may exercise upon the newly formed councils. They will be able to supply in an eminent degree precisely what is lacking to the parties who, by the new statute, have been forced into a novel partnership. The habits of independent thinking and concerted action, the power of interpreting to the one class the thoughts and feelings of the others, these are the aptitudes for service in this connexion which they may be expected to possess, and these should make their services indispensable to their localities. It is, therefore, matter for congratulation that not a few of our professional brethren have been found willing to assume the burdens of this office, and that their fitness has been promptly and effectively recognised by the new constituencies.

So far, we have dealt only with very general considerations. To the extent already indicated, the medical practitioner will be able to render valuable aid, not less in discussing the lighting of the roads or the diversion of the highways than the questions of sanitation which will claim the attention of the new boards; but it will, of course, be in connexion with matters bearing upon the public health that the benefit of the participation of medical men in the counsels of the parish will be most conspicuous. There are many questions, such as the draining of ponds and the utilisation of water-supplies, which have been specially entrusted to the new bodies. These are matters which in rural districts have a very special importance just because as matters stand at present their importance is but imperfectly recognised. Our village communities have grown accustomed to many seriously insanitary conditions which would be easily amended if only the requisite criticism were brought to bear upon them and the village intelligence educated to a just appreciation of the inconvenience and risk which such nuisances entail; but for this preliminary process it is indispensable that these things should be regarded from a point of view wholly different from that to which the farmer, the labourer, or the other denizens of the village have grown accustomed. It is fortunate that in reference to such matters the local practitioner will naturally enjoy the prestige of a reputation for exact and scientific knowledge, for there will be no little weight of lethargy and prejudice to be dislodged before such matters as these can be usefully discussed. But, in point of fact, there is room for a very considerable extension of the powers of the parish councils beyond the limits of the matters expressly assigned by the Act to their jurisdiction, for they may receive a large accession of authority by delegation from the district councils appointed under the Public Health Act. These delegated powers have been heretofore exercisable by local committees, but henceforth they will devolve upon the parish councils. If any large use should come to be made of this power of delegation the functions of the parish councils as sanitary authorities may receive an almost unlimited extension and acquire significance quite out of proportion to the modest functions expressly assigned by the Act to the newly created parish authorities. There is thus a new and large demand made upon our professional brethren in rural districts, and we make no doubt that on this, as on many other occasions they will be found by no means wanting in the manifestation of public spirit.

Annotations.

"Ne quid nimis."

SUNDRY QUESTIONS AFFECTING MEDICAL STUDENTS.

NOT the least interesting of the publications of the General Medical Council is the Medical Students Register. The Register for the year 1894 has just appeared, and we may direct the attention of our readers to a few of the principal facts which it brings out. It is very important to know whether the excessive flow of students of medicine continues or not. The Register gathers together into a focus those of every school in the kingdom, and indeed in the empire, and includes, too, a dozen who have passed the examination in preliminary education of certain Continental bodies. In the year 1894 1671 medical students were registered as such. It is curious to notice the examining bodies whose examinations in preliminary education the principal groups of students passed. The University of London heads the list in point of numbers, and it is known to be not behind others in point of severity. No less than 265 medical students, about a sixth of the whole number registered in 1894, had passed the matriculation examination of this University. The next largest group (251) is that registered as passing the examination of the College of Preceptors. The University of Cambridge comes next, and accounts in respect of examination in preliminary education for 199. In Ireland the chief portal of the profession is the matriculation examination of the Royal University of Ireland, on which 102 students registered. In Scotland the examinations in preliminary education of the Universities of Edinburgh, Glasgow, and

Aberdeen had been passed respectively by 83, 93, and 51 of the students registering. The examination in Arts of the Apothecaries' Society was passed by 70 students who registered. Of non-medical bodies, the Educational Institute of Scotland ranks next in numbers to the College of Preceptors, having passed 95. Another table gives the places of medical study whereat the students registered commenced their work. Here the University of Edinburgh has the lead with 154 students but is very closely followed by the University of Cambridge with 153. The University of Glasgow follows with 96. Coming to the strictly medical schools, the greatest number of students—86 in 1894—commenced work at Guy's Hospital, at Owens College 66, and at St. Bartholomew's Hospital 65. The largest numbers in Ireland were in the Catholic University Medical School, Dublin, which had 50 entries, followed by 40 at Queen's College, Belfast. At the foot of p. 11 a note informs the reader that pupilage is no longer valid as a *commencement* of professional study. By a recent resolution of the Council registration as a student can only be effected on commencement at a university, a school of medicine, or a teaching institution, where physics, chemistry, and elementary biology are taught, recognised by a licensing body. Pupilage to the extent of six months is recognised by the General Medical Council, but at the other end of medical education—in the fifth year. A very important question, How does the whole number of commencing students compare with that of previous years? is answered by a table on p. 12. This shows 76 less than the previous year, but exactly the same number as in the year 1892. A valuable table gives the registration of students annually from 1865 to 1894. The average annual entry for the last ten years has been 1901. It is too soon to conclude that there is any adequate perception of the crowded state of the profession, but it is something to have had in two recent years an entry of 230 below the average of ten years. It appears that of 47,930 students registered in the three divisions of the kingdom in the twenty-nine years 23,906 (49·88 per cent.) were registered in England, 14,526 (30·30 per cent.) in Scotland, and 9498 (or 19·82 per cent.) in Ireland.

THE DANGERS OF STREET PENNY TOYS: A PROTEST.

FAR be from us the wish to add to the lamentably well-filled ranks of the unemployed, or to prevent any man from earning a more or less honest living. But he who would live must also let live, and not, as too often in the case of the street seller of penny toys, imperil the lives of others. We have often alluded to this very real danger. Our present protest is impelled by personal ocular demonstration. Beneath our windows stands an honest son of toil—who, to make a rough and ready diagnosis from inspection, is a veritable culture ground of tubercle bacilli and a fit subject for the hospitality of a hospital, "consumption" or otherwise—persistently and as energetically as his lungs will allow imitating the warblings of the feathered songsters who do *not* inhabit the Strand by blowing down the spout of an apparently rather pretty little imitation of a milk jug, numbers of which he carries on a tray. Unconsciously, no doubt, he makes his little effort towards antisepsis by transferring from a tin box to his mouth from time to time a portion of tobacco of Cimmerian hue. The disinfecting properties of tobacco are as yet not clearly proved—at all events as regards the bacillus of tubercle. The filthiness of the procedure is, in the present instance, undoubted, and will, we trust, when we make it known, act as a potent prophylactic by preventing people purchasing these dangerous toys. Another street vendor perambulates a limited portion of pavement offering for sale what appears to be a grotesque doll of pantomimic aspect, whose head requires to be kept at hydrocephalic proportions by constant expirations from the lungs of its peripatetic proprietor. He happily presents no apparent signs of tuberculosis, but, alas, there is the possibility of other and even worse contagious diseases to be considered, not necessarily in him as an individual, but in his numerous *confrères* plying their trade along some miles of London thoroughfares. Let it be well taken to heart that these penny toys must be bought by a great number of persons and taken home to their children, a large proportion of whom may possess a "soil" richly prepared by heredity to receive and fructify the seeds of tuberculosis. Let the other horrible possibilities of the transference of disease be borne in mind, and it will be recognised that this is no mere passing "scare" that we raise, but a most serious danger to the health of the community worthy of the earnest attention of our legislators, engaged though they are with other matters of pressing importance. Trade such as this requires legal supervision. At any rate the element of personal infection should be discouraged. The possibilities of scarlet or other fevers from the housing of these wares at night are bad enough; the certainty of direct microbic infection is appalling.

THE BUDAPEST CONGRESS AND THE DRINK QUESTION.

IT will take a considerable time before the official report of the Eighth International Congress of Hygiene and Demography, which met at Budapest last September, can be published. Indeed, considering the enormous number of subjects treated and papers read, the issue of anything like a complete report is a most formidable undertaking. In the meanwhile, the text of the resolutions carried has been issued in pamphlet form and in four languages, Magyar, French, German, and English. The moral value of these resolutions rests principally in the fact that they were adopted by the Sections in which they were discussed. As explained by our special correspondents who attended the Congress, the general meeting of the entire Congress which should have confirmed or rejected the resolutions carried in the Sections was a dismal failure. Though as many as 2500 persons were inscribed as members of the Congress there were never more than 120 persons present at the general meeting, and much of the work was done when only forty or so remained in the room. The resolutions accepted by this poorly attended general meeting were read out at the official closing ceremony of the Congress, where a far larger number of persons was present. But these resolutions were then read as a matter of form, and no discussion was either possible or attempted. For the most part they were described in the columns of THE LANCET at the time; but there are some few subjects which, from plethora of material, were omitted or but briefly mentioned by our correspondents. Among these we would mention the vexed question of alcoholism. Now that the Government of Great Britain is pledged to legislation on the liquor traffic it may be useful to see what resolutions were adopted on the subject by the last International Congress of Hygiene. In the Fourth Section a resolution proposed by Dr. Béla Axmann was carried, and it was confirmed at the subsequent general meetings of the Congress. It was to the following effect: "Considering that 61 per cent. [presumably in Austria] of the accidents happening in factories and workshops are caused by the use of alcoholic drinks, the attention of the Governments ought to be called to this fact. The Section proposes that the price of light beverages such as beer, which are less harmful, should be lowered as far as possible, whilst that of strong intoxicants should be raised

high enough to render their consumption more difficult." Again, in the Fourteenth Section, a resolution brought forward by Drs. Crocq, Witlacil, and Eulenburg was adopted and confirmed by the general assemblies. It is thus worded: "The public authorities should be requested to combat the abuse of alcohol according to their position with all their power. The means for this end are the following—viz., temperance and abstinence associations; restriction of the sale of alcoholic liquors, especially that of brandy [presumably spirits generally]; supervision of the manufacture of brandy and assumption by the State of its monopoly; raising of the taxes on spirits and brandy, and lowering of the taxes on wine and beer; and establishing asylums for drunkards and placing habitual drunkards under legal guardianship." Professor Aglave, Doctor in Law of the Paris University, is in a great measure responsible for the above resolution. For many years he has travelled from country to country interviewing members of various Governments, and collecting a large amount of evidence for the purpose of proving that the best way of combating alcoholism is to ensure the sale of absolutely pure—that is to say, sufficiently rectified—alcohol, and that this result can only be attained by making the manufacture and sale of alcohol a State monopoly. The Swiss and the Russian Governments have already adopted this proposal, and there is, we believe, some prospect that the French Government will follow suit; while in Canada the Dominion Government exercises an absolute control over the manufacture and storing of alcohol.

THE RED CROSS IN ABYSSINIA.

WHETHER, or to what extent, the recent successes of the Italians on the Abyssinian frontier will encourage Signor Crispi in his African policy, and lead to the consolidation of that "Colonia Eritrea" which for the last ten years has been a burning question in Italy, is one of the interesting problems of the immediate future—interesting, indeed, to several other European Powers than the Italian, and not least so to our own. Meanwhile there is one cause which already sees an opportunity for development in those semi-civilised regions, and that is the Red Cross organisation. Of late years the European Powers have been engaged in a series of those "little wars" which in the Duke of Wellington's opinion are more costly than advantageous, but a redeeming feature of which is the extended usefulness they have given to the "care and cure of the wounded in battle." The conflict between Spain and Morocco brought back to life that Spanish Association of the Red Cross which had fallen into desuetude since the Carlist rising some thirty years ago, and now the campaign of General Baratieri on the Italo-Ethiopic frontier has aroused the "Croce Rossa Italiana" to seek a fresh field for its energies in the far east of the same continent. France and Belgium have already, in their respective "spheres of influence," awoke to their responsibilities in that direction, till we may fairly look forward, before the century closes to the establishment of as many centres of the Red Cross organisation as there are European nationalities effecting a foothold in "Darkest Africa." As becomes the Power which claims priority in the humanitarian idea which was embodied in the Geneva Convention, Italy has lost no time in making the extension of her military operations to the Soudan coincident with a transference of her Red Cross material and *personnel* to that region, and, with the coöperation of her War Office, she is organising throughout the more vulnerable tracts of the "Colonia Eritrea" a series of ambulance stations on the model of those which, of late years, have given so good an account of themselves in the autumn manœuvres of her army in the Alta Italia. In the hill country of Asmara, already utilised as summer quarters for the garrison at Massowah, she contemplates a convalescent sanatorium in supplement to those frontier stations, and this may be regarded as the prelude to the opening up of that delightfully salubrious region to the service of other patients than those drawn from the army. Civilisation, indeed, has everything to gain in tracts stretching inland from the Red Sea littoral by the planting of hospitals and health resorts on the European model, and the energy with which the Italian initiative is being taken towards that end must act as a wholesome stimulus to other Powers whose colonial interests in the same continent are at once more extended and more menaced. The "Prefettura Apostolica," which, in coöperation with the Vatican, Signor Crispi has established in the Tigre and throughout the "sphere of Italian influence," is fitly followed by a "Prefettura Igienica"; and this, both for the work it is capable of doing and the example it holds out to other Powers similarly circumstanced on the same continent, will go far to reconcile the votaries of "peace at any price" to that forward movement in Africa to which, by the *force majeure* of competition and the need of Europe for an expansion of her "colonial outlet," nearly all the more enterprising nationalities see themselves inexorably committed.

IS IT INFLUENZA?

THE word "influenza" is rapidly approaching the status of Abracadabra or "that blessed word Mesopotamia," or the Ægean Sea, which latter was always the refuge of the schoolboy geographer. Nor can we wonder at this when we remember the protean forms in which the disease did undoubtedly manifest itself from 1889 to 1892. At the present time there is certainly a widespread catarrhal affection of some kind which is generally called "influenza," though we rather doubt whether it always is. By influenza we mean an acute febrile attack, the incubation being very short and the onset of the disease being characterised by severe muscular aching, a rigor, a high temperature and intense headache, and sometimes vomiting and diarrhœa. All or most of these symptoms pass off in twenty-four to thirty-six hours, leaving the patient greatly prostrated and with a troublesome cough and some bronchial catarrh; but though there are certainly some sporadic cases of influenza about, we would issue a warning against the growing habit of calling every indefinite feverish attack by this name. That it is a temptation no one will deny, especially when we consider how anxious patients are that their disease should be named and how the practitioner is apt to be looked down upon if he says he cannot do so. But it must also be remembered that influenza is a serious disease, and it is therefore unwise to call any febrile catarrhal affection by this name, for these latter when properly treated never leave any serious sequelæ, whereas the former complaint, even though treated with every care, may, and often does, leave a large legacy of grave evils behind it.

RATIONAL DRESS.

AMONG the many definitions of man is one which defines him as the only animal that wears clothes. Now this would be correct if we added the word vertebrate, for several of the lower animals do wear clothes, and wear them, too, with a sense of their fitness and sensible use that puts the bimanous vertebrate to shame. Among these animals who have solved the problem of rational dress are the hermit crab, the larva of the caddis, and certain caterpillars. These clothes are rational in so far that they are fitting for whatever the wearers are doing (of course the problem is simplified when the day's occupation consists of little else than eating and sleeping); but how far below these creatures in our use of dress are we. Men have for ages scoffed at women for the vagaries and flights of fancy displayed in their dress, but there is really but little to choose between the sexes

except in the great matter of the pocket, for except a professional thief no mortal being, even the owner, can get at a woman's pocket. It is more, however, the weak points of men's dress to which we desire to draw attention, and specially to the fact that the lungs, as far as anatomy goes, are exposed at the back almost more than at the front. Yet man's clothing overlooks this fact. A man's shirt is at least three times thicker in front than at the back, his waistcoat is always a mere lining at the back, and if, as the majority of men do, he does not button his coat his back is sure to be much exposed. Take again the change from morning to night. During the day a man goes about with thick woollen clothes, thick socks, thick boots or shoes with spats. At night he puts on very thin clothes, a waistcoat which is no protection whatever, thin shoes, silk socks, without any spats, and sallies forth to dine, after which perhaps a dance or a theatre. When arrived he congratulates himself that he is not as those poor silly women who go about with the upper part of their chests bare. We are certain, however, that men catch cold from wearing evening dress far more than women do, and it behoves all who go out in the evening to keep the legs and feet warm as well as the upper part of the body, and to wear an extra vest to make up for the practical disappearance of the waistcoat.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

WE would direct the attention of the governors and treasurers of the various hospitals and dispensaries of the metropolis, who desire that their institutions shall participate in this year's distribution, to the necessity for sending in their applications to the Secretary of the Fund, Mr. H. N. Custance, at the Mansion House, on or before March 5th. Applications must be accompanied by the income and expenditure account for the past year, printed according to the uniform system agreed upon and duly audited by a public accountant. The addition to Law IV. of the Constitution which came into force on Jan. 1st, 1893, making it compulsory that the accounts of each institution should be presented on a uniform basis, has greatly facilitated the labours of the Distribution Committee in comparing the relative merits of the respective institutions, and unless this rule is complied with no award will be made. We regret to have to call attention to a practice which cannot be too severely condemned—namely, that of issuing one report to the Hospital Sunday Fund satisfying these requirements and another to the supporters of the institution concerned. Such proceedings are not calculated to increase public confidence, and, it is hardly necessary to say, will not be recognised by the Distribution Committee, who require one form of account only. We regret that we should have to refer to this matter, and trust that Sir Sydney Waterlow—who we hope will be permanently restored to health and be able to move, as he has done for twenty-two years in succession, the adoption of the Distribution Committee's report this year—will not, as he did on the previous occasion, have to deplore such proceedings.

OPHTHALMOPLEGIA AND WEAKNESS OF THE OCULO-FACIAL GROUP.

SINCE the experiments carried out by Mendel showing that in certain animals the orbicularis palpebrarum seems to receive its nerve-supply from the third cranial nerve nucleus a few noteworthy observations on the subject in man have been recorded. Drs. Tooth and Turner, in a valuable account of a case of bulbar paralysis, found that while the cells of the facial nucleus were completely degenerated the nerve itself had in it undegenerated fibres, and they thought that these were probably derived from the third nucleus and were for the supply of the orbicularis palpebrarum and frontalis, which had been found functionally active during life. Dr. Hughlings Jackson has also recorded in the columns of THE LANCET his observations on cases of ophthalmoplegia, in which he found that when the eyes were as tightly closed as possible there was no difficulty, or comparatively little difficulty, in raising the upper eyelid. The other facial muscles being intact this weakness of the orbicularis was naturally regarded as a result of the impairment of the third nucleus, which presumably had led to the paralysis of ocular movements. Such an observation naturally lent considerable support to Mendel's hypothesis that the third nucleus supplied the nerve filaments to the orbicularis palpebrarum, just as the hypoglossal nucleus is supposed to be the source of the nerve fibres which supply the orbicularis oris. There can be no doubt that functionally the ocular movements and those of the orbicularis palpebrarum are very closely associated, just as those of the tongue and of the orbicularis oris are. In a recent number of the *Wiener Klinische Wochenschrift* Dr. Hanke records a case of congenital ophthalmoplegia, or of ophthalmoplegia occurring in very early life and affecting nearly all the ocular muscles of both eyes, in which in the twenty-sixth year of life a paralysis of the levator palpebral superioris and also of the frontalis took place. The case, according to Dr. Hanke, supports Mendel's hypothesis that the oculofacial group is supplied by the third nerve nucleus.

INTERNATIONAL CONGRESS FOR THE PROTECTION OF INFANCY.

WE announced in THE LANCET of Dec. 15th, 1894, that Florence would, within the coming year, be the seat of the International Congress for the Protection of Infancy, and we indicated the quarter from which its *personnel* would be most largely recruited, as also the tenour of the discussions, so far, at least, as the communications sent in enabled us to judge. Since then, however, the Italian organising committee, which has its headquarters in Florence (No. 7, Piazza d'Azeglio), has had intimation that another congress with the same object and on the same lines to be held in 1895 has been preparing in France, and so, to obviate the inconvenience of two such meetings occurring within the same twelvemonth, it defers its own meeting till the October of 1896. This is as it should be, and the loyalty with which the two committees are coöperating gives promise of a highly effective promotion of the interests both have at heart. The French Congress will meet at Bordeaux on Aug. 12th, and its work is divided into three principal sections. The first takes cognisance of Children Morally Abandoned, and will deal with the Decline of Parental Authority and the Delegation of this latter to other Hands. The second has for its main subject the Administrative Protection of Infancy. It will take up the well-known "Loi Roussel," which has aided considerably in diminishing the death-rate among children put out to nurse. The application of this law and its further extension to all children reared, gratuitously or not, outside the parental roof will form the theme of many important papers and discussions. The third section will concern itself principally with the Physical Protection of Infancy, under which head the question of the alimentation of the child from its first day of life to the close of its second year will be threshed out in all its ramifications. An elaborate monograph has been announced on the Means to be employed by Private Initiative to secure the soundest Methods of such Alimentation, the author's name being as yet withheld. From the programme now before us the Congress cannot fail to be an effective one, the Italian contingent having thrown itself with zeal into its proceedings; while there is every probability that the misguided patriotism which kept

France from being represented at the Tenth International Congress of Medicine and Surgery, which met in 1890 at Berlin, will arouse no German reprisals with regard to the meeting to be held at Bordeaux. French hospitality may be trusted to treat the delegates from the Fatherland with all courtesy and consideration, in harmony with the philanthropic motive which brings the Congress together. We may add that the provisions for the comfort and entertainment of the delegates from abroad are commendably liberal—*inter alia*, the entrance ticket being presented gratuitously to each on his announcing himself in Bordeaux.

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

IN the report of the London and Counties Medical Protection Society, Limited, for 1894, which we have just received, are some very interesting accounts of cases in which action has been taken by the society. The report refers to the Indian oculists prosecution, which has already been commented upon in our columns,[1] and expresses a hope that although the trial of 1893 did not end in a conviction it may lead to an amendment of the Medical Acts. Several instances are given of the successful prosecution of unqualified practitioners, and as regards the case of Mr. Anderson of Tobago the report intimates that it must be carried before the highest appellate tribunal in the realm. A short account of the abortive attempt at amalgamation with the Medical Defence Union is given, from which it would seem that at present there is not much hope of union.

THE DIFFUSION OF SMALL-POX.

THE fresh cases of small-pox in London were last week 8 in number, against 11 in the preceding week, and there was 1 registered death, that of an unvaccinated person belonging to the parish of Marylebone. Some anxiety has been caused in that parish owing to recent events in connexion with the occurrence of unremoved cases of small-pox. One house in the locality of Lisson-grove was the residence for ten days of a malignant case of small-pox, which proved fatal within a few hours of diagnosis and notification. During the next fourteen days fully a score of fresh cases arose in the parish which could be traced with certainty or great probability to infection derived at the house in question, occupied as it was by five families. Great activity has been manifested in dealing with the evil results of this case; but anxiety is not yet at an end, inasmuch as at least 3 additional cases have come to light after varying intervals of residence of unremoved small-pox patients in the midst of other susceptible persons, and mischief may, it is feared, yet result from these occurrences. We are glad to learn that the vestry have resolved to erect a shelter and baths for the use of persons who have been exposed to the danger of contracting infectious diseases, together with means for the disinfection of their clothing. In West Ham, where in the first week of February small-pox showed serious recrudescence, only 2 attacks were chronicled last week. At Birmingham, too, the attacks fell to half the previous week's record, only 6 being noted last week, with 1 registered death. At Liverpool and Bootle we hear of a dozen attacks. The Registrar-General for Scotland returns 8 deaths from small-pox in the great towns during January—namely, 2 in Glasgow, 5 in Edinburgh, and 1 in Leith. In Dublin there were admitted to hospital in the week ended Feb. 9th 60 small-pox cases, as compared with 61, 64, and 69 in the three preceding weeks, the discharges numbering 84 and the number remaining under treatment being 141, in addition to 142 convalescents at Kilmainham, or 283 in all. Seven deaths from small-pox in the week occurred, 2 in vaccinated adults and 5 in unvaccinated persons, one a child aged five and the rest in adult life. Of the 63 persons dying from small-pox in Dublin in 1894, all in the last six months of the year, as many as 39 were unvaccinated; all the 16 children under five years of age dying from the disease belonged to that class.

[1] THE LANCET, Nov. 4th, 1893.

ENDOCARDIAL LESIONS IN TUBERCULOUS SUBJECTS.

THE effects of endocardial lesions on the course of tuberculosis is an old and well-discussed subject, but in the *Annales de Médecine* of Feb. 8th we find it dealt with from rather the opposite standpoint—i.e., the effect of tuberculosis on diseases of the endocardium. The conclusions there given are those arrived at by Teissier in his work on the subject. Endocardial lesions due to tuberculosis are multiple in form and complex in pathology, the tubercle bacilli, toxines, and associated bacteria all combining to produce the disease. The bacillus acts locally by producing a specific lesion, and generally by its deteriorating effect on nutrition. The tuberculine, on the other hand, is said to influence the vaso-motor system and so to be specially active in the sclerosing forms. The specific lesion showing itself as granular or caseating nodules is rare, being less frequent than tuberculous pericarditis. It is always a secondary lesion due to presence of bacilli in the circulation, and does not cause any characteristic cardiac signs. The sclerosing form is frequent and the result of slow tuberculous infection. It occurs in the course of chronic tuberculous cases, and shows itself by producing harsh cardiac murmurs. Many of the cases of valvular disease in scrofulous subjects are thought to be influenced by the presence of tuberculous toxines. An acute form due to secondary infection is also described, which appears to tally by its clinical course with infective endocarditis. It may, like infective endocarditis, take a vegetative or an ulcerative form, but more work has yet to be done before accurate conclusions can be drawn.

INSANITY AMONG THE NATIVES OF SOUTH AFRICA.

IN the January number of the *Journal of Mental Science* Dr. Duncan Greenlees, the Medical Superintendent of the Grahamstown Asylum, South Africa, has a very interesting paper on this subject. He has gone over the cases of natives admitted to the asylum in the last nineteen years, and has classified his results under several headings. In regard to age he finds that in males the most frequent age is between twenty-five and thirty years, while in females it is thirty to thirty-five years. By far the most common form of insanity is mania, melancholia being rare, and in the acute form in which it is found among white patients extremely uncommon. Epilepsy and epileptic insanity are not unknown among native races, even apart from traumatic cases, but general paralysis is so rare that amongst the pure natives it may be considered not to exist. It is difficult to get at the causes of insanity among natives, the history being, of course, necessarily imperfect. But Dr. Greenlees mentions two important causes—viz., excessive drinking of alcoholic beverages and the smoking of *dagga*, a plant almost identical, it is said, with Indian hemp, which produces temporary intoxication, ending sometimes in an outburst of maniacal excitement. As to the causes of death, the frequency with which chest diseases are the immediate cause is noteworthy, and also the rarity of actual gross brain disease as a cause. This last fact is probably explained by the absence of conditions of life likely to cause cerebral disease, while the former seems to indicate that the clothing of the native, with the liability to sit in wet clothes, &c., renders him liable to pulmonary affections.

As to the nationality of the natives treated the great majority were Kaffirs and Hottentots, the two native races most closely associated with the white, and therefore presumably exposed to more nearly similar conditions than other natives would be living remote from civilisation and the deteriorating influences which the white man seems to carry with him to native races.

CLINICAL SOCIETY OF LONDON.

THE Council of the Clinical Society has unanimously resolved that, owing to the death of the late President, Mr. Hulke, F.R.S., the meeting arranged for Friday, Feb. 22nd, will be postponed to Friday, March 1st, at 8.30 P.M. The agenda will be the same as originally announced in THE LANCET of the 16th inst.

THE MEDICAL REGISTER.

THROUGH the courtesy of Mr. W. J. Miller, the Registrar to the General Medical Council, we have received a copy of the Medical Register for 1895. At the end of last year the total number of names on the Register was 32,637; at the end of 1893 the numbers were 31,644. If we mistake not the Register makes its appearance earlier this year—a fact upon which we congratulate Mr. Miller.

MORVAN'S DISEASE AND LEPROSY.

As is well known some writers assert that not only Morvan's disease but also scleroderma and Raynaud's disease are merely varieties of leprosy. The position of the question has been considered by M. Gombault in the *Revue Neurologique*.[1] He asks if it would not be more prudent and at the same time more scientific to consider this as a hypothesis, seductive and fascinating no doubt, but still awaiting proof. M. Marestang, he says, has examined the question from the clinical point of view, and finds that even in this respect Morvan's disease and leprosy are by no means identical. Moreover, pathological anatomy does not furnish any confirmation of the view, for neither has the bacillus of Hansen been demonstrated in any of the cases of Morvan's disease examined by M. Gombault, nor have the changes in the peripheral nerves been found which are characteristic of leprosy; and as to the spinal cord this has only been twice examined in cases occurring in Brittany, and in both this organ was manifestly the seat of syringo-myelia—a condition which is in all likelihood the anatomical substratum in cases of Morvan's disease. This, of course, does not imply that cases of leprosy may not have symptoms closely analogous to those found in certain cases of Morvan's disease, but to acknowledge this and to claim that the diseases are identical are two very different things. Their identity could only be established by the demonstration of the bacillus of leprosy in an acknowledged case of Morvan's disease.

MIDWIVES AND THE DEATHS OF CHILDREN.

AN inquest was held at Woking recently by Mr. G. F. Roumieu, coroner for West Surrey, on two children aged two months and six weeks respectively, who both died from pneumonia attributed by the medical witness, Mr. Howlin, to blood poisoning produced by the midwife using her own appliances. The chief evidence in support of this view was the death of the two children within so short a time attended by the same midwife, who, instead of using materials and instruments supplied by the parent, is said to have used her own. Theoretically, of course, if midwives were well trained their instruments and materials should be safer than those of others. The midwife said she always disinfected her instruments with carbolic acid. And it must be allowed that in a season of intense frost the occurrence of two cases of pneumonia is not in itself necessarily proof of fault in the nurse. But the coroner and the jury and Dr. Seaton, medical officer of health of the County Council of Surrey, and Mr. Wellington Lake, medical officer to the Guildford sanitary authority, all seemed to concur in the theory which traced the pneumonia to blood poisoning and not to cold. Dr. Seaton thought that such cases should be notified. All agreed that the midwife, Mrs. Lee, bore a good reputation, and the coroner said she left the court without any stain on her character. She said that between these two cases she had attended ten others without anything wrong occurring in the children. Dr. Seaton and Mr. Lake promised to draw up rules for the guidance of this midwife in future. Certainly midwives cannot be too particular in cleansing and disinfecting their hands, instruments, and clothing.

BACTERIOLOGY OF CHOLERA.

As the result of some careful and extended observations upon cholera patients made at the Hygienic Institute of Königsberg, Drs. R. Abel and R. Claussen conclude[1] that: 1. Cholera vibrios in fæcal matter as a rule die within the first twenty days; they seldom remain alive for thirty days; whilst the prolongation of their existence to fifty-two days, as has been noted by Karlinski and Dunbar, is quite exceptional. 2. In many stools cholera vibrios cannot be found after from one to three days; hence the necessity of examining the dejecta of cholera patients as soon as possible after they have been passed. In an appendix to this paper it is shown that cholera vibrios may occur in healthy individuals, and it is urged that isolation should not be discontinued until repeated bacteriological examinations have proved the bacilli to be absent. They give particulars of seventeen individuals, members of families in which cholera had occurred in Wehlau (Eastern Prussia) in the autumn of 1894. Of these seventeen persons, who did not sicken or only had slight transient diarrhœa, examination of the stools showed an exceptionally large percentage of cholera vibrios. In many cases, however, one or more days would elapse before any organisms were detected, and then they would again appear in abundance, showing that if the patients had been allowed out of quarantine on the first occasion that the stools were found to be free from bacilli they might have disseminated the disease. In one case it was possible to determine with fair accuracy the incubation period of cholera. This was the case of a man, a member of one of the infected families, whose stools daily examined yielded no bacilli; an examination on Oct. 1st of a stool passed on Sept. 30th yielded a like negative result, but he was attacked with cholera in the night of Sept. 30th—Oct. 1st, and died on the 2nd. Hence it is inferred that the time between infection and onset of symptoms in this case must have been between twelve and twenty-four hours.

DR. CURNOW will take the chair at the King's College Hospital past and present students' dinner, which is to be held at the Holborn Restaurant on Friday, March 1st. Any past students who wish to be present should apply for tickets at once to Messrs. J. Gott and A. H. Safford at the hospital.

A DISCUSSION is announced to take place on Tuesday evening next at the Royal Medical and Chirurgical Society upon Affections of the Nervous System occurring in the Early (Secondary) Stages of Syphilis.

SIR RICHARD QUAIN has accepted the office of President of the North-West London Clinical Society.

[1] Archives de Neurologie, January, 1895.

[1] Centralblatt für Bakteriologie, 1895, Nos. 3 and 4.

PROFESSOR CLIFFORD ALLBUTT will give a lecture before the Hunterian Society on Wednesday, Feb. 27th, at 8.30 P.M., in the London Institution, Finsbury-circus. He has chosen for his subject Senile Plethora: High Arterial Tension in the Aged. All members of the profession are invited.

ARMY MEDICAL DEPARTMENT REPORT FOR 1893, WITH APPENDIX.

[FIRST NOTICE.]

THE medical report on the health and sanitary condition of the army for 1893, making the thirty-fifth volume of these reports, which has just been issued, consists with its appendices of 397 pages. In the latter are included some interesting papers and reports, such as those on the Progress of Hygiene for 1894, and on the late International Congress at Budapest for the same year, by the Professor of Military Hygiene at Netley; a list of operations at Netley by the Professor and Assistant-Professor of the Army Medical School; a report on the Eighth Congress of the Association Française de Chirurgie, by Surgeon-Lieutenant-Colonel Pratt, and one by Surgeon-Major H. E. R. James, F.R.C.S. Eng., on the Late Epidemic of Bubonic Plague at Hong-Kong, together with papers by different members of the Army Medical Staff descriptive of surgical and other cases that have come under their observation or treatment.

The major portion of the volume, consisting of the official report on the health of the troops at home and abroad during 1893, gives the usual statistical data, tables, and summaries, with the necessary descriptive or explanatory comments and brief references to disease causes and sanitary conditions with which our readers are familiar.

The prefatory observations to the present volume sum up the general results so succinctly and well that we cannot do better than follow them pretty closely. The health statistics of the troops at home for the year under review are favourable. A serious outbreak of enteric fever occurred at Aldershot. Influenza was largely prevalent in 1893, but not quite to the same extent as in 1892. For all forms of venereal affection there was a slight decrease in the admission-rate, but a fractional increase in the constantly-sick rate. There is no other matter, it is stated, calling for special notice in regard to the health of the troops serving in the United Kingdom in 1893.

As regards the colonies, some of the notable points referred to are: the admission-rate at Gibraltar was higher than in 1892 owing to the prevalence of simple continued fever, and the sick-rate for venereal affections showed a considerable increase. At Malta there was an outbreak of enteric fever attributed to contaminated water. In Canada the health of the troops was excellent. Enteric fever was rather prevalent in Bermuda. Malarial fever of a severe and fatal type was very prevalent in the Mauritius in 1893, and it is remarked that residence there is either followed by an increased liability to this form of fever or by a general deterioration of health. In China, as in the Mauritius, much of the bad health of the troops was also attributable to the same cause—malarial fever. In Egypt, as at Cyprus and in the Barbadoes command, the chief cause of inefficiency is stated to have been venereal affections, nearly a third of the admissions to hospital having been due to these diseases. In India the health of the troops was fairly good. The increased prevalence of venereal affections in the three Presidencies is referred to. In Bengal enteric fever was not so prevalent in 1893, and cholera showed a marked decline; in Bombay the health of the troops was very good; and there was no special outbreak of sickness to be recorded among the troops in Madras in that year.

Turning to the statistical summaries shown in the tables on the second and third pages of the report, we find that the average strength of the troops at home and abroad was 202,125, and that 100,105 of this number were stationed in the United Kingdom and 69,865 in India, the remainder being distributed throughout the various other commands, and notably those of the Mediterranean. The hospital admission-rate of the troops at home and abroad for 1893 was 1010·5, the death-rate 8·30, and the number sent home as invalids was 24·21, of whom 13·30 were discharged as invalids, per 1000 respectively; the constantly non-effective from sickness was 60·90 and the average duration of each case of sickness was 22·01 days per 1000. The death-rate in the United Kingdom was 5·13 per 1000, at Gibraltar it was 2·74, in Cyprus 1·82, and in Canada 2·11; while at Malta it was 10·47 per 1000, in Egypt 13·60, in the Mauritius 18·14, and in India 13·15 per 1000 respectively.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6906 births and 5430 deaths were registered during the week ending Feb. 16th. The annual rate of mortality in these towns, which had risen in the three preceding weeks from 18·7 to 20·7 per 1000, further increased last week to 26·7. In London the rate was 29·3 per 1000, while it averaged 24·9 in the thirty-two provincial towns. The lowest rates in these towns were 14·5 in Croydon, 18·3 in Hull, 18·7 in Plymouth, and 19·8 in Derby; the highest rates were 27·2 in Manchester, 27·3 in Preston, 27·7 in Leeds, 29·2 in London, and 39·6 in Liverpool. The 5430 deaths included 315 which were referred to the principal zymotic diseases, against 297, and 312 in the two preceding weeks; of these, 93 resulted from whooping-cough, 64 from measles, 52 from diphtheria, 36 from scarlet fever, 35 from "fever" (principally enteric), 33 from diarrhœa, and 2 from small-pox. No fatal case of any of these diseases was recorded in Huddersfield or in Hull; in the other towns they caused the lowest death-rates in Brighton, Croydon, Nottingham, and Preston, and the highest rates in Wolverhampton, Sheffield, Manchester, and Burnley. The greatest mortality from measles occurred in Sheffield, Gateshead, and Plymouth; from scarlet fever in Burnley; from whooping-cough in Bristol, Norwich, and Birkenhead; and from "fever" in Bolton. The 52 deaths from diphtheria included 27 in London, 4 in Liverpool, 3 in Wolverhampton, and 3 in Birmingham. One fatal case of small-pox was registered in London and 1 in Birmingham, but not one in any other of the thirty-three towns. There were 67 cases of small-pox under treatment in the Metropolitan Asylum Hospitals on Saturday last, the 16th inst., against 35, 58, and 56 at the end of the three preceding weeks; 18 new cases were admitted during the week, against 8, 21, and 18 in the three preceding weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 1657, against 1662, 1653, and 1667 on the three preceding Saturdays; 159 new cases were admitted during the week, against 186, 160, and 149 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had increased from 324 to 480 in the three preceding weeks, further rose to 840 last week, and exceeded by 382 the corrected average. The causes of 131, or 2·4 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Cardiff, Oldham, Leeds, and in seven other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Liverpool, Huddersfield, Halifax, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 23·9 and 26·2 per 1000 in the two preceding weeks, further rose to 35·1 during the week ending Feb. 16th, and was 8·4 per 1000 above the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 20·6 in Perth and 22·1 in Leith to 41·9 in Greenock and 43·0 in Glasgow. The 1013 deaths in these towns included 46 which were referred to measles, 33 to whooping-cough, 17 to diarrhœa, 6 to scarlet fever, 6 to diphtheria, 6 to "fever," and one to small-pox. In all, 115 deaths resulted from these principal zymotic diseases, against 89 and 81 in the two preceding weeks. These 115 deaths were equal to an annual rate of 4·0 per 1000, which was 2·5 above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of measles, which had decreased from 42 to 26 in the three preceding weeks, rose to 46 last week, of which 23 occurred in Glasgow, 12 in Aberdeen, and 9 in Edinburgh. The deaths from whooping-cough, which had been 18, 25, and 27 in the

three previous weeks, further rose to 33 last week, and included 25 in Glasgow and 4 in Dundee. The fatal cases of scarlet fever, which had declined from 12 to 4 in the two preceding weeks, rose to 6 last week, of which 4 occurred in Glasgow. The deaths from diphtheria, which had been 5, 3, and 7 in the preceding three weeks, were 6 last week, and included 4 in Glasgow. The deaths from "fever," which had been 6 in each of the two previous weeks, were again 6 last week, and included 4 in Glasgow. The deaths from diarrhœa rose from 6 to 8 in the previous two weeks, and further increased to 17 last week, and included 9 in Glasgow and 4 in Greenock. One death from small-pox was recorded in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 163 and 214 in the two preceding weeks, rose to 345 last week, and exceeded by 223 the number in the corresponding period of last year. The causes of 83, or more than 8 per cent., of the deaths in these towns were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 31·9 per 1000 in each of the two preceding weeks, rose to 34·2 during the week ending Feb. 16th. During the past seven weeks of the current quarter the death-rate in the city has averaged 32·7 per 1000, against 20·5 in London and 23·7 in Edinburgh. The 229 deaths registered in Dublin during the week under notice showed an increase of 15 upon the number in the previous week, and included 17 which were referred to the principal zymotic diseases, against 16 and 19 in the two preceding weeks; of these, 8 resulted from small-pox, 5 from diarrhœa, 2 from "fever," 1 from diphtheria, 1 from whooping-cough, and not one either from measles or scarlet fever. These 17 deaths were equal to an annual rate of 2·5 per 1000, the zymotic death-rate during the same period being 1·7 in London and 2·5 in Edinburgh. The fatal cases of small-pox, which had been 7, 5, and 7 in the three preceding weeks, further rose to 8 last week. The 5 deaths referred to diarrhœa exceeded the number recorded in any recent week. The deaths from different forms of "fever," which had been 4 in each of the two preceding weeks, declined to 2 last week. The mortality from whooping-cough showed a marked decline from that recorded in recent weeks. The 229 deaths in Dublin last week included 27 of infants under one year of age and 79 of persons aged upwards of sixty years; the deaths of infants were below those recorded in any recent week, while those of elderly persons showed a marked further increase upon recent weekly numbers. Four inquest cases and 4 deaths from violence were registered; and 79, or more than a third, of the deaths occurred in public institutions. The causes of 16 or more than 7 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

MOVEMENTS OF THE MEDICAL STAFF.

SURGEON-MAJOR MORRIS has left Bermuda on completion of a tour of service. Surgeon-Captain Kelly has arrived at Halifax. Surgeon-Captain Rawnsley has embarked for Malta on exchange, and Surgeon-Captain Tatham on trooping duty. The following officers have arrived from India in the *Malabar*:—Surgeon-Lieutenant-Colonel Robinson, Surgeon-Major Le Mottée, and Surgeon-Captains Elliott and Hassard. Surgeon-Major O'Sullivan has been transferred from Dublin to Belfast; Surgeon-Captain Browning, from Kilkenny to Limerick; and Surgeon-Captain McCormack, from Woolwich to Hounslow. Surgeon-Major Wilkinson has been posted to Aldershot on return from foreign service, and Surgeon-Major Hewett to the North-Eastern district.

ARMY MEDICAL STAFF.

The following appointments are gazetted:—Surgeon-Captains to be Surgeon-Majors: W. G. Macpherson, M.B.; R. J. S. Simpson, M.B.; E. V. A. Phipps; A. Baird, M.B., F.R.C.S. Edin.; T. W. O'Hara Hamilton, M.B.; D. Semple, M.D.; J. R. Stuart, M.B.; W. B. C. Deeble; R. P. Bond; G. T. H. Thomas, F.R.C.S. Edin.; G. M. H. Colman, M.B. Surgeons on probation to be Surgeon-Lieutenants: W. S. Harrison, M.B.; H. A. L. Howell; D. Lawson; E. B. Steel, M.B.; C. W. Profet, M.B.; F. Kiddle, M.B.; H. E. Staddon; J. H. Whitehead; J. A. Murison, M.B.; L. P. Tomlinson; S. J. C. P. Perry; and A. F. Heaton.

INDIA AND THE INDIAN MEDICAL SERVICES.

Surgeon-Major F. A. Harris, A.M.S., has been appointed to the Medical Charge of the Station Hospital, Indore; Surgeon-Lieutenant William Carr Sprague having completed three years' full-pay service, to be Surgeon-Captain; Surgeon-Lieutenant H. W. H. O'Reilly, A.M.S., has been appointed to the Medical Charge of the Station Hospital at Calicut. The following appointments and transfers of medical officers have been ordered:—Surgeon-Lieutenant R. F. E. Austin, from the Bombay to the Sind district for general duty; Surgeon-Captain C. S. Sparkes, A.M.S., on arrival from England, to the Mhow district, for general duty; Surgeon-Captain B. D. Basu, I.M.S., to the Officiating Medical Charge of the 9th Bombay Infantry; and Surgeon-Captain T. W. Irvine, M.B., to the Officiating Medical Charge of the 7th Bombay Lancers.

NAVAL MEDICAL SERVICES.

The following appointments are notified:—Staff-Surgeons: M. O'Connell Macswiny to the *Barfleur*, and A. H. Miller to the *Mildura*. Surgeons: R. H. Nicholson, R. Hardie, and E. Cuffey to the *Scylla*; P. E. Maitland to Haslar Hospital; J. W. W. Stanton to the *Scylla*, and after to the *Pigeon*; G. T. Broatch to Yarmouth Hospital; J. W. O. Underhill to the *Barfleur*; and B. C. E. F. Gunn to the *Malabar*.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain John Sutcliffe to be Surgeon-Major.

VOLUNTEER CORPS.

Rifle: 1st Volunteer Battalion, the Sherwood Foresters (Derbyshire Regiment): Surgeon-Major T. L. Gentles to be Surgeon-Lieutenant-Colonel. 4th (Perthshire) Volunteer Battalion, the Black Watch (Royal Highlanders): Surgeon-Lieutenant C. Brown, M.D., resigns his commission. 2nd London: Surgeon-Captain A. R. H. Oakley resigns his commission.

DEATH IN THE SERVICES.

Surgeon-Major Albert Richard Waghorn, M.D., Bengal Army (retired) at Redhill on the 6th inst. at the age of sixty-six. He served at the siege, assault, and capture of Delhi, 1857 (medal and clasp); and in the Bhootan Campaign, 1865 (medal and clasp).

ACCIDENT TO A NAVAL SURGEON.

We regret to learn that Surgeon Hugh St. David Griffiths met with an accident on Thursday, Feb. 14th, while travelling from Paddington in a corridor train. Through opening by mistake a door he was thrown on to the line, but fortunately was able to drag himself to a place of safety before the passage of an up train from Plymouth. The accident happened near Swindon, from which town assistance was promptly sent.

THE CANTONMENT BILL.

This Bill seems to have given rise to a great deal of discussion and consideration in India, if we may judge from the length of the speeches and the debate it caused in the Viceroy's Legislative Council as reported in the public journals of that country. The Hon. Sir Griffith Evans made a long and weighty speech on the occasion, fully setting forth the history of the matter, which is a larger one than is commonly supposed, in that it affects the constitution of the Indian Government. A number of other speakers took part in the debate. The third section of the Cantonment Act Amendment Bill has been withdrawn, and very properly, for nothing could be said in favour of a most objectionable and unnecessary piece of legislation as far as the Government medical service of India is concerned. The second section stands, subject to such changes as may be made in it on the recommendation of a select committee to whom it was referred. It seems probable, however, that the matter will not end here should further experience prove that the prevalence of this class of diseases continues to increase and to cause even a greater amount of inefficiency than exists at the present time.

COMMISSIONED MEDICAL OFFICERS AND LOCAL GOVERNMENTS AND ADMINISTRATIONS.

The *Times of India* says: "With reference to a recent ruling of the Government of India, in which it was pointed out that commissioned medical officers whose services were placed at the disposal of local governments and administrations were sometimes thrown out of civil employment for short periods, the Government of India have decided to fix a definite maximum number of supernumerary officers which

each local government and administration (except Hyderabad assigned districts and Coorg, which it is considered should not be brought within the scheme) may retain in excess of those filling sanctioned appointments in the cadre of the Indian Medical Service. The following are the numbers that have been fixed: Madras, 4; Bombay, 4; Bengal, 4; North-West Provinces and Oudh, 3; Punjab, 3; Central Provinces, 1; Burmah, 2; and Assam, 1."

A GOORKHA ASYLUM.

A movement is on foot to establish near Simla an asylum for the maintenance and education of the orphan sons of Goorkha pensioners and for old soldiers in indigent circumstances. The proposal has received the approval of both the late and the present Viceroys, and many high officials in India. More than R.7000 have been collected in India, and the committee now ask for a similar sum from England. Donations should be sent to Messrs. H. S. King and Co., 45, Pall-mall, London.

INDIAN MEDICAL SERVICE DINNER IN WAZIRISTAN.

Members of the Indian medical service serving with the three brigades of the Waziristan field force made arrangements for a corps dinner at Ihandula, and accordingly, on the 10th ult. twenty-eight medical officers, with a few of their combatant friends, dined together. Surgeon-Colonel Spencer, Principal Medical Officer of the field force, presided. Surgeon-Captain Gilbert managed the details with a successful result.

ALDERSHOT.

With reference to the rumours about the prevalence of enteric fever at this station, a correspondent, apparently acquainted with the facts, writing to the *Standard* says that there have been only four cases of that fever in the camp during the last six months in a military population of about 15,000. It seems, as he urges, unlikely that the water-supply or milk can have been the cause of the disease, otherwise cases would have occurred among the families and married people, or there would have been an outbreak of the disease on a larger scale; nor is it easy to explain how the water received its specific contamination.

MILK-SUPPLY IN INDIA.

The Government of India have deputed Veterinary-Major W. H. Kemp to inspect all dairies under military supervision, with the view of enabling the Government to arrive at a satisfactory conclusion on the question of the supply of pure milk to hospitals of British troops and troops generally in that country.

The *Broad Arrow* states: "It is notified in an Army circular just published that time on half-pay not exceeding one year shall be allowed to reckon as service in the case of an officer of the Staff Corps or of the Indian Medical Service placed on half-pay on account of ill-health contracted in the performance of military duty, and that such time shall also reckon as service for promotion. This period of one year's service on half-pay can only be reckoned by an officer on his restoration to full-pay, and he cannot be promoted whilst remaining on the half-pay list; but the period will reckon for pension, whether an officer retires direct from half-pay or after restoration to full-pay. Retrospective effect to the above concession will, where necessary, be given from Jan. 1st, 1887."

Advices from the West Indies station report an outbreak of yellow fever on board the ships of the British Training Squadron which were in quarantine at Bermuda. A number of cases have proved fatal, nine burials taking place within one week.

Brigade-Surgeon-Lieutenant-Colonel King, Superintendent of the Royal Botanical Gardens in Calcutta and Government Quinologist, has been granted an extension of service for two years in compliance with the recommendation of the Government of India

Surgeon-Colonels Churchill and Maunsell, the Principal Medical Officers at Woolwich and Cork respectively, are held in readiness for service in India.

THE New Element will form the subject of a popular lecture at the Royal Victoria Hall on Tuesday, Feb. 26th, at 8.30 P.M. It is a sign of the times surely that scientific discovery should be expounded to the public at an admission fee of 1*d*.

Correspondence.

"Audi alteram partem."

"ANÆSTHESIA BY THE CHLOROFORM AND ETHER MIXTURE."

To the Editors of THE LANCET.

SIRS,—The article on this subject by Dr. Truman in THE LANCET of Feb. 16th is undoubtedly of great value, more especially as it opens up a field of research from which much useful information may be expected. With regard to this particular article, however, there are one or two points upon which I should like to be permitted to express some opinions. In the first place I think that attention should be drawn to the fact that the observations made by Dr. Truman apply to "a mixture of one volume of chloroform and two of ether," and cannot therefore be held to apply absolutely to what I believe is more usually referred to in England when we speak of "the" mixture; more often than not I fancy that this term is applied to the combination otherwise known as "the A.C.E.," containing one part by volume of alcohol to two of chloroform and three of ether. It is held by some that the addition of the alcohol is a most important factor in this particular combination, for it is maintained that not only does it tend to equalise the evaporation of the other constituents, but that it even retards the absorption of the chloroform. May I express the hope that at some future date, either through your columns or through the medium of the Society of Anæsthetists, Dr. Truman may give us his views upon these theories? The second point to which I would draw attention is that Dr. Truman speaks of the administration of his mixture by means of "Clover's inhaler"—i.e., an inhaler with a bag. Used in this way I quite agree with him that the proceeding would be most dangerous, for I take it to be one of the axioms of anæsthetics that closed inhalers (by which I understand any form of bag inhaler) are absolutely contra-indicated in the administration of any anæsthetic or combination of anæsthetics containing chloroform; not only is there the objection referred to by Dr. Truman of irregularity in evaporation, but there is also the still graver risk of the accumulation of a highly dangerous percentage of chloroform vapour in the bag. In the concluding sentence of his article Dr. Truman admits that by the open method the vapours would doubtless be more evenly distributed, and to my mind this very admission rather counteracts his previous deduction that when ether cannot be used unmixed chloroform should be employed. I quite agree with Dr. Truman in his preference for ether, but I hardly think that the observations recorded in his article justify the use of unmixed chloroform as the second string to one's bow. I think, however, that his observations are of the greatest value as emphasising the danger of administering chloroform in any shape or form by means of a closed inhaler.

I am, Sirs, yours faithfully,

J. FREDK. W. SILK,

Anæsthetist to Guy's and King's College Hospitals &c.

Weymouth-street, Portland-place, W., Feb. 18th, 1895.

To the Editors of THE LANCET.

SIRS,—I should like to make a few comments on the article on Anæsthesia by the Chloroform and Ether Mixture by Dr. Edgar Truman in the last issue of THE LANCET. His arguments against the use of this mixture are based on the rapidity of vaporisation of ether compared with chloroform, and hence, as shown by his analysis, that "the patient would be inhaling 100 volumes of ether to 0·953 of chloroform at the first, whilst ..... at the last would be inhaling 100 volumes of ether to 75 of chloroform." Allow me to point out that from a practical point of view this is a desirable result, because it is the beginning of the administration which is the most dangerous time; therefore there is more safety at this period from the fact that the patient is chiefly breathing ether. When the patient is fully under, the increased proportion of chloroform in the vapour inhaled is of much less danger, and even at this period Dr. Truman admits that there is an excess of ether over the chloroform. In conclusion, I may state that the increased

safety of the mixture compared with the use of chloroform alone is obvious to anyone who has had experience of both.

I am, Sirs, yours faithfully,

C. F. MARSHALL,
Late Anæsthetist to the Hospital for Sick Children, Great Ormond-street.

Charing-cross-road, W.C., Feb. 16th, 1895.

"THE GENERAL MEDICAL COUNCIL AND THE OBSTETRICAL SOCIETY."

To the Editors of THE LANCET.

SIRS,—Dr. Lovell Drage has resorted to a common dialectic device and gone off at a tangent to discuss questions which were not raised in the letters written by Sir John Williams and myself—viz., the examination and registration of midwives. His views on these topics are well known, and I must beg him to excuse me if I do not follow him into so useless a controversy. So far as I know, the General Medical Council has expressed no opinion upon them, and there is no reason to suppose that it has formed one unfavourable to either. What the Council has done is to inform the Obstetrical Society that it has arrived at the conclusion, apparently formed after hearing one side of the question only, that its diploma is liable to the objection of being a colourable imitation of a "licence to practise medicine, surgery, and midwifery." As soon as possible after the receipt of this resolution the society resolved not to issue any more diplomas until a form was decided upon satisfactory to the Council. The society was not asked to discontinue its examinations, and I do not know what more it could have done; but the society may, I think, reasonably complain of the needlessly offensive and irritating terms in which the resolution was couched. I have been taken to task for calling the resolution "insulting"; but surely it is nothing less than insulting to a body of honourable men, banded together to promote the welfare and progress of an important department of medicine, to associate with its work such a formula as "infamous in a professional respect," hitherto restricted in its application to the most degraded and ignoble members of the profession? I have been informed by a member of the General Medical Council that this resolution was passed because the Council believed that repeated representations had been made to the society which had received no answer. No such repeated representations ever reached the society, and this plainly indicates very slipshod and ineffective business arrangements on the part of the Council. In any analogous case in private life should it be shown that action was taken on unfounded premises explanation would certainly be made. I do not see why the Council as a body should not be expected to respect the courtesies and amenities of life, which its members would certainly attend to in their private and individual capacities. Perhaps you could find space to print this famous diploma, of which I enclose you a copy, so that your more impartial readers may judge for themselves whether it is or is not a colourable imitation of a "licence to practise medicine, surgery, and midwifery."

I am, Sirs, yours truly,

W. S. PLAYFAIR.

George-street, Hanover-square, Feb. 16th, 1895.

[COPY.]

OBSTETRICAL SOCIETY OF LONDON.

We hereby certify that .....
has passed to our satisfaction the examination instituted by the Obstetrical Society of London, and is, in our opinion, a skilled midwife, competent to attend natural labour.

"THE ABSENCE OF SUGAR FROM NORMAL URINE PROVED BY A NEW AND SIMPLE METHOD."

To the Editors of THE LANCET.

SIRS,—In replying to that part of Dr. Pavy's last letter which alone concerns me I will be as brief as possible; but to make the position clear I must begin by a somewhat long extract. After saying that it is the actual presence and not the quantity of sugar in normal urine that he has contended for, he proceeds to say: "Sir George Johnson has based arguments upon the *quantity* he says I have asserted to be present. I have not, however, committed myself to anything absolute upon this point. My statement contains the provisional 'if' to meet the doubt that existed in my mind. It runs thus: 'If the cupric oxide reduction found to occur [after treatment with the neutral and basic lead acetate] be read off as produced entirely by sugar, the amount of this principle ordinarily existing in healthy urine may be said to stand at about 0·5 or a little over per 1000. ..... As long as Sir George Johnson only quoted me imperfectly I did not consider it necessary to take any notice, but Dr. Halliburton at the end of his letter falls into the same imperfect representation." It is remarkable that not only I and Dr. Halliburton, but Dr. Noel Paton[1] also, failed to discover how much was concealed beneath Dr. Pavy's "provisional 'if,'" and thus, not seeing what was in the author's mind, we are charged with having quoted him imperfectly. Let me remark in passing that Dr. Pavy, referring to Dr. Halliburton's admission that a small amount of sugar is obtainable from normal urine, omits to quote the following sentence: "Whether this is artificially produced by the method of analysis as suggested by Sir George Johnson is a subject that demands renewed research." I will not follow Dr. Pavy's example by suggesting that this omission is an "offence to literary probity."[2]

In a letter of mine which was published in THE LANCET of July 21st, 1894, occurs the following query: "Does Dr. Pavy still maintain, as he did in his paper in vol. lxiii. of the Transactions of the Royal Medical and Chirurgical Society, that while one-fourth of the reducing action of normal urine upon cupric oxide is accounted for by uric acid, the remainder of the reduction, which would amount to at least half a grain of glucose per ounce is 'due to the small amount of sugar naturally present in urine?' and, further, 'it is doubtful if there is any other body worthy of consideration to produce any reducing effect.'" To this question Dr. Pavy made no reply, his reason, perhaps, being that as "Sir George Johnson only" asked the question he "did not consider it necessary to take any notice." It is evident that when Dr. Pavy's paper was published in 1880 he knew nothing of the existence and the reducing power of urinary kreatinine. At that time this want of knowledge was excusable, but since then it has been proved that the removal of kreatinine from normal urine leaves no reducing agent in the filtrate; and yet further that the amount of reduction effected by normal urine having been accurately determined a solution of kreatinine of the same indicated strength causes an equal amount of reduction, whether determined by the cupric oxide or by the picric acid method. It is inconceivable that so accomplished a physiologist and chemist as Dr. Pavy can be ignorant of these now notorious facts, and it is probable that beneath the "provisional 'if'" there is concealed more than has hitherto been revealed to the ordinary reader. I venture to suggest that in the sentence which Dr. Pavy has quoted from his book if the word "kreatinine" were substituted for "sugar" the only inaccuracy would be in the estimated amount of reduction. Numerous careful observations have shown that the average amount of reduction in normal urine excluding uric acid is 0·8 grain per fluid ounce calculated as glucose, indicating in round numbers about a grain of kreatinine to the fluid ounce of urine, which is equivalent to 0·22 per cent. by weight of that substance.

I am, Sirs, yours faithfully,

Savile-row, W., Feb. 18th, 1895. GEORGE JOHNSON.

To the Editors of THE LANCET.

SIRS,—I am sorry that my letter on this subject should have raised so much feeling on Dr. Pavy's part. The only point I feel bound to answer is Dr. Pavy's statement that I have misquoted him. At the conclusion of his account of the experiments I referred to Dr. Pavy writes: "The circumstances observed stand, it is to be remarked, in accord with the statement of Pasteur that acidity opposes, while alkalinity favours, the occurrence of fermentation." From this I somewhat naturally concluded that Dr. Pavy had been dealing with alkaline solutions. But even if the solutions were absolutely neutral it is difficult to understand how the neutralisation of strongly acid substances can be accomplished by sodium carbonate without the evolution of carbonic anhydride. If for no other reason than this I still feel bound to adhere to my previously expressed opinion that the use of sodium carbonate for neutralisation is a source of error in the fermentation test.

[1] Edinburgh Medical Journal, December, 1894.
[2] See Dr. Pavy's letter in THE LANCET of Feb. 9th, 1895.

Evolution of carbonic anhydride would occur even more rapidly if the solutions are neutral than if they are alkaline; for if the solutions are strongly alkaline there is a liability of sodium bicarbonate being formed, and thus little or no free gas makes its appearance.

Since the foregoing paragraphs were written I have learned, in conversation with Dr. Pavy, that he neutralised with sodium carbonate several hours, and in some cases days, before the application of the fermentation test. This, one must freely admit, alters the case, for one cannot but suppose that all decomposition in which sodium carbonate took place would be over by that time. It would perhaps have been well if Dr. Pavy had stated this originally, for observers who tried to repeat his experiments would otherwise have fallen into the source of error of which the first part of this letter speaks. For those who work rapidly, I think Dr. Pavy will himself admit that it would be wiser for them to adopt some other alkaline material for the purpose of neutralisation. The object of such a correspondence as this is, I take it, to get to the truth of the matter, and would it not assist us in so doing if Dr. Pavy would amplify his position in other directions also? For instance, in speaking of the detection of alcohol Dr. Pavy alludes only to the chromic acid test. Now this test is given by several volatile organic substances. It would, therefore, add to the value of this discussion if Dr. Pavy would state whether other tests were applied for the identification of alcohol. Then, too, there is the question of kreatinine. If Dr. Pavy would state definitely once and for all his opinion on this matter we should be nearer a solution of the difficulty between Sir George Johnson and himself.

I am, Sirs, yours faithfully,

W. D. HALLIBURTON.

Ridgmount-gardens, W.C., Feb. 18th, 1895.

"SCHOOL BOARDS AND MEDICAL CERTIFICATES."

To the Editors of THE LANCET.

SIRS,—The question of signing School Board certificates has been constantly before us in this district. I always refuse to sign them or allow my house surgeon to do so, telling the applicants that if summoned I will attend as a witness on their behalf. This would result in the cases being dismissed with costs against the School Boards, and consequently they never adopt this procedure. Recently one of them wrote to my committee requesting that it would direct these certificates to be signed. I explained that they were not wanted by the children or their parents, but by the School Boards, and as I was not a servant of the School Boards they were not entitled to my gratuitous services. My committee sent a reply to the effect that the question of certificates for School Boards had nothing to do with it, its duty being only to administer the hospital for the benefit of the poor. Surely School Boards ought to have paid medical officers to whom they could refer all such cases.

I am, Sirs, yours faithfully,

ROBERT W. DOYNE.

Oxford, Feb. 18th, 1895. Surgeon, Oxford Eye Hospital.

THE ABUSE OF MEDICAL CHARITIES.

To the Editors of THE LANCET.

SIRS,—The following case is a good example of the above. Three weeks since a patient upon whom I had operated for ovarian disease eight years since came to me with a like tumour of the other ovary calling for immediate removal. The fee was arranged, after the now usual wish expressed (save probably in some special instances) to have this moderated to any possible extent, but the only reason the husband could offer was that his money was locked up in his business. As it was inconvenient that the operation should be done at her own house, which was also the place of business, it was arranged that it should take place at a nursing home where other of my cases have been, and the cost of such was not objected to. A few days later I received a note from the husband, enclosing a letter of admission to the paying wards of the Hospital for Women, Soho-square, and asking me to sign that portion of the form stating that the patient was from my "personal knowledge" a fit and proper person to be admitted to these wards at the payment of *one guinea* per week. This, I pointed out to the husband, I could not do. I wrote to the secretary of the hospital stating that I had refused to do so, and adding that I was satisfied they would find on inquiry that the patient was not a proper person for hospital relief. I enclosed a printed memorandum heading showing that the husband was a partner in the firm, and giving the address. I would here add that on the earlier occasion of my operating, when my fees and those of a medical man whose immediate patient she then was were cheerfully paid, the husband was only a servant of the then existing firm. A few days later the secretary wrote me (Feb. 7th) that he had "laid my letter in reference to Mr. ——'s case before the committee of management, and am instructed by them to inform you that after due inquiry they have satisfied themselves that the case is a proper one for admission to the hospital." Comment is needless. I am, Sirs, yours faithfully,

Phillimore-gardens, W., Feb. 19th, 1895. WILLIAM TRAVERS.

"FEVER AND SMALL-POX HOSPITALS."

To the Editors of THE LANCET.

SIRS,—In connexion with the leading article with this title in THE LANCET of last week on a memorandum on isolation hospitals by the medical officer of the Local Government Board, in which you express your disagreement with those who seek to limit the power of diffusion of small-pox, I should like to say a few words.

In the paragraph of my report, which you quote, the extreme limit of diffusibility is put at 1000 feet. My reasons for this opinion were based upon one year's experience of the complete immunity of a considerable population residing in public institutions at about this distance from a small-pox hospital. The number of patients who passed through the small-pox hospital during the year was 1563, all of whom were admittedly in an undoubtedly infectious condition. There were good reasons for supposing that the inmates of the institutions referred to were on about the same footing as regards protection from small-pox as the general public. Why, then, should the question of vaccination and convalescence be used as arguments to invalidate the conclusion at which I arrived? The argument as to convalescence appears to me to be simply a begging of the question. Whatever sense is attached to this term by the officers of the Local Government Board, the fact remains that the patients were all infectious when admitted, and were discharged as soon as they were free from infection. The experience to which I drew attention in my report may or may not be solitary, but it is not capable of explanation, in my opinion, on the grounds given in your article; and it is opposed to the view of those who hold to any higher degree of diffusion than the 1000 feet limit.

I am, Sirs, yours obediently,

C. E. MATTHEWS.

Fountain Hospital, Tooting, Feb. 20th, 1895.

"AN APPEAL."

To the Editors of THE LANCET.

SIRS,—I was truly grieved to learn from Mr. Upton's letter in THE LANCET of Feb. 16th that the widow of Professor G. J. Guthrie is practically penniless. I do not know why she was left unprovided for; but I do know that every member of the profession, whether he is aware of it or not, is indebted to Guthrie for the work which he embodied in his "Commentaries on the Surgery of the Peninsular War"—especially on the subject of the treatment of hæmorrhage. Gutbrie's work was almost always heavy and anxious; yet in spite of all difficulties, and often of danger, he went on collecting, examining, and describing the specimens which were to prove his views. "At Toulouse a large shot struck an officer ..... and nearly tore off the right thigh. I saw him shortly afterwards ..... every indication of approaching dissolution. The house being ..... close to one of the French redoubts the fire of round shot and musketry was so severe as to induce me to remain until the battery should be taken by the troops then advancing upon our flank. To occupy my time usefully I returned to the officer and found he had just expired. Desirous of seeing by what means the hæmorrhage had been arrested I cut down upon the artery, took it carefully out, and found," &c. Thus Guthrie obtained the facts which definitely settled the principles of treatment in cases of hæmorrhage. Surely, Sirs, we as a profession will not allow the widow of such a worker to die of want. I trust that at least treble the amount asked for by Mr. Upton will

be promptly promised and in the form of annual subscriptions. A guinea or two a year from a few of us during the rest of Mrs. Guthrie's life is all that is wanted to enable her to end her days free from the terrible strain of pecuniary anxiety.

I am, Sirs, faithfully yours,

Harley-street, W., Feb. 19th, 1895. STANLEY BOYD.

"MEDICAL WITNESS AND JUDGE."

To the Editors of THE LANCET.

SIRS,—In an annotation under the above heading in THE LANCET of Feb. 16th the expression "there was no evidence that penetration had occurred" was a "correct phrase" and "logical inference" from the facts of the case—i.e., penetration may or may not have occurred, but if it had there was no proof or evidence of it. A purulent discharge is no proof of penetration, nor is semen, pus, and epithelial scales on the shirt of a prisoner. The prisoner was examined a few days after the alleged assault by the gaol surgeon and found to have no discharge. I was a scientific witness and had to deal with other conditions observed by myself, and not "presumptive evidence," that being a matter for the judge and jury. I based my opinion upon my examination and not upon the evidence of the prosecutrix.

I am, Sirs, yours faithfully,

Southsea, Feb. 16th, 1895. LYSANDER MAYBURY.

"THE CONSUMPTION SCARE."

To the Editors of THE LANCET.

SIRS,—Referring to the leading article under the above heading in THE LANCET of the 2nd inst. I venture to ask your indulgence in order to point out one or two matters in connexion with this subject which are not commonly recognised, and which should rouse the public care and interest to preventive action.

We all have brought before us day by day the serious consequence of the marriage of phthisical persons; it may be the disease is not hereditary, but the predisposition is acknowledged to be hereditary, and I have seen whole families swept away miserably. I have seen others live, perhaps, more miserably; for instance, where both parents are phthisical and unable to gain a decent livelihood. I have seen a family growing up afflicted in all sorts of ways, with brain disease, mesenteric disease, and still increasing in numbers. I remember cases where whole families of eight or nine have died, chiefly from meningitis, and I feel sure that many of the parents would not marry if they knew clearly their responsibility and there were homes to which invalids could go. It is known that cows which are tuberculous exist in sheds, and there is no law by which they can be seized, although we are told by the best authorities that the milk of such cows is a chief cause of tuberculous disease in children. We can forbid the sale of the milk if we can catch people selling it, but we cannot touch the cow; then clearly power is wanted to destroy the cow and compensate the owner. Authorities tell us that 10 per cent. of cattle slaughtered are tuberculous, and we know that diseased carcases of all sorts are sent off to towns, and there seems no protection against this if the viscera and ribs are kept back and sold in the country, where the inspector of nuisances is not often capable of detecting disease, nor is he likely to supervise properly 200 or 300 slaughter-houses scattered through his district—probably the police might be trained to do this. Rows of old, dark, dilapidated, damp, dirty houses with little air space continue to exist in spite of the attempts to abolish them when we know that sunlight and pure air, with strict cleanliness of floors, walls, and furniture, are necessary for protecting children from the attacks of this destructive disease.

Dr. Cornet points out that beds, especially at lodging-houses and hotels, are probably a source of danger, and this opinion has long been held in Malaga and other resorts of the phthisical, yet we all see day by day lodging-houses where lodgers follow one another for 3*d*. per night's accommodation, but the sanitary authority has no power to order the disinfection of the beds from time to time, while the practical remedy seems to be that the authorities should have some power to order spring mattresses to be covered with blankets and straw pillows, and the blankets to be boiled at defined intervals. As a rule, there is no proper steam disinfecting apparatus for beds in small places, though many decent people would like their beds purified, after disease particularly. I know of no homes, excepting the cottage homes which Dr. Trudeau has established near the Adirondack Mountains, where a young man or young woman warned of tuberculous disease or tendency can go, and not one where they may live quietly and partly gain their independence by a pleasant easy occupation such as fruit, flower, rose, or vegetable growing under glass, or where, as in the highlands of the Cape, Australia, Peru, or California, they may in the bright, dry atmosphere of the mountain or near the sea hope to recover their health by occupation in the pure air. Monasteries and abbeys have been, and are, established for more or less useful purposes perhaps, but I am aware of no home, no wealth, no intelligent energy devoted to so noble an object as restoring health to the sick phthisical, and partial independence to those in delicate health inherited from phthisical parents who ought not to marry and desire to engage in some useful healthy occupation. It seems as though we preferred to pay for crippled lives of children and slow deaths in preference to taking any trouble to prevent such things, or otherwise the subject is not understood by the public, and some scare seems wanted to rouse the public conscience to such dangers as exist. I am, Sirs, your obedient servant.

M.O.H.

"THE REMUNERATION OF THE RESIDENT OFFICERS IN ST. BARTHOLOMEW'S HOSPITAL."

To the Editors of THE LANCET.

SIRS,—With regard to the letter on this subject which appeared in THE LANCET of Feb. 9th, there is, I think, no doubt that payment of a fee or having to board oneself during a resident appointment may be to a few a positive hardship, coming as it does at the end of a long and expensive curriculum, when many feel the necessity of at least earning enough to help themselves; but at the same time "Fair Pay" is hardly in keeping with his title when he calls the system a sweating one and states that the resident gives time and health up for no return. The very fact of having held an appointment at a hospital belonging to a medical school is invaluable in after life. It brings a man into constant personal contact with some of the leading members of the profession; it gives him confidence in himself; it is the best stepping-stone to other appointments; and, in short, is the very best start a man can make after getting qualified. Surely, then, these are some returns for the time given, returns no doubt largely depending on the personal factor in the case, but in most cases incomparable to the small amount that may actually at the time be lost out of pocket. St. Bartholomew's is not the only hospital where a fee is charged. At Middlesex the fee is £10 10*s*. for a six months' appointment, but there the resident is boarded and lodged free of further charge, and I believe there are also other hospitals where a small fee is charged.

I am, Sirs, yours faithfully,

Feb. 18th, 1895. LATE HOUSE PHYSICIAN.

To the Editors of THE LANCET.

SIRS,—It is because I am an old resident at other hospitals as well as at St. Bartholomew's, and because I know the difficulty in obtaining reforms from hospital committees, especially when it is a question of finance, that I broached the above subject in your columns. I admit with your correspondent, "An Old House Surgeon of St. Bartholomew's," that the experience gained as a resident there is invaluable, and that one has a "general good time"; but I do not think men join hospitals as junior officers for the latter purpose, nor should I think it worth while to pay £50 for it. The main point is that other hospitals not so well off can support their residents, then why not St. Bartholomew's. Personally I blush for my *alma mater* when I compare it with other institutions in this matter, and I feel sure that the present system must prevent some of its students who cannot afford a "good time" from applying for the various posts which would otherwise be open to them. I have not actually come across such a case, but I have not the least doubt that they exist. Your correspondent knows as well as I do that while men are resident in the hospital they have not the opportunity of broaching such a subject as this, nor would they be listened to if they did. Except as an old student of the hospital it does not concern me now; but it did very much once, and I venture to think that should this correspondence

help ever so little in hastening the better payment of these officers, which I am confident will be accomplished ere long, it will not have been in vain.

I am, Sirs, yours faithfully,

London, Feb. 16th, 1895. FAIR PAY.

To the Editors of THE LANCET.

SIRS,—Many past and present students of St. Bartholomew's will agree with "Fair Pay" in his strictures upon the governing body of the richest hospital in London for making it necessary that a man should spend £50 (and this a minimum) if he obtains a house physician's or house surgeon's appointment. In my own case, after I qualified I was offered a house appointment at St. Bartholomew's at a definite date, and was unable to accept it owing to the expense involved. At the time I left the hospital—not more than four years ago—I knew of two or three men in a similar position to myself in this respect.

In his reply to "Fair Pay's" letter "An Old House Surgeon of St. Bartholomew's" asserts that this is a question of no concern to anyone unconnected with the hospital. His own letter shows why it is of interest to the profession in general, for it is important for the profession to see that house surgeons are taught by this improper system that their relations with other medical men are to be regulated by no other consideration than the "law of supply and demand" in its money sense, and that "An Old House Surgeon of St. Bartholomew's" has learnt his lesson so well that he allows himself to rejoice at having had "a general good time" at the expense of his poorer contemporaries.

I am, Sirs, yours faithfully,

Feb. 18th, 1895. R.M.O.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Royal Infirmary.

THE annual meeting was held the other week, and the report shows that this, the oldest medical charity of Manchester, is still growing and extending. During the year 1356 patients have been treated within its walls. There have been 33 889 out-patients, 970 have been treated at their own homes, 2633 have been received at the Monsall Fever Hospital, and 1610 have been sent to the Convalescent Hospital at Cheadle. The expenditure has been as follows: Royal Infirmary, £17,999; Convalescent Hospital, £5518; and the Monsall Fever Hospital, £13 865. The Infirmary, however, is not large enough for the demands made upon it, and there is much perplexity as to the best method of increasing the number of beds, of providing administrative requirements, and the means and appliances necessary for the complete equipment of a modern hospital. This difficulty is increased by a resolution of the trustees, passed in 1892, which forbade the covering of more land than is occupied by the present building. Strong objection has been expressed from time to time in the City Council to any further encroachment on the surrounding space, and on this point the council may be taken as a reflex of public feeling. Various schemes for enlargement have been suggested, but two only seem feasible. The first and best would extend the front, and so form two additional wings, which would add 100 beds and give space for the other requirements; but it is blocked by the resolution of 1892. By the second another storey would be put on the present building. The adoption of either plan would be a mistake—indeed, a misfortune. Though the sanitary condition of the Infirmary is good and the patients do well, the perpetuation of antiquated structural defects, such as long gloomy corridors, which add greatly to the difficulties of ventilation, would be deplorable. Far better would it be to pull it down altogether. A new hospital might be built on the present site giving the required accommodation, and if necessary the nurses could be domiciled in the immediate neighbourhood.

Price of Gas and of the Electric Light.

A long discussion took place at the last meeting of the City Council as to the price of gas. The gas committee recommended the Council to abolish the charge for the hire of gas-meters and to reduce the price of gas used within the city for other than lighting purposes from 2*s.* 6*d.* to 2*s.* per 1000 feet. It was further recommended that "the price of electric current be reduced from 8*d.* per unit to 6*d.* per unit," and to long-hour consumers that the present charge of 2*d.* per unit, with fixed charge equal to 4*s.* per quarter per lamp, be continued. In the end it was resolved that meter rent should be abolished and that the price of gas should be reduced to 2*s.* 3*d.* for all purposes. This will to some extent encourage the use of gas for domestic purposes and for gas-engines in place of small steam-engines, with a proportional clearing of the air from smoke. There remains the drawback, however, of a great excess of sulphur in the Manchester gas. It is a serious evil, towards the removal of which more ought to be done than is at present apparent. The reduction of 25 per cent. in the price of the electric light will tend to popularise it still more, and it is already becoming a serious rival to gas.

Manchester Hospital Work Society.

The above society held its sixth annual meeting recently, and the report shows how usefully it supplements in some directions the work of medical charity. It is mainly concerned in providing and distributing to the various hospitals articles of clothing corresponding as far as possible with the number of beds in the hospitals supplied. "The total number of beds in the sixteen hospitals is 1657, and the number of garments provided 1643. The committee continue to receive from the authorities of the different hospitals reports which abundantly testify to the beneficial effects resulting from the use of garments supplied for ward purposes by the society." It may be mentioned that the honorary treasurer and secretary are the wives of medical men.

Provident Dispensaries.

The working of these institutions as at present conducted may be illustrated by the report presented at the annual meeting of a branch dispensary in Salford. After expressing pleasure at there being a favourable balance the report proceeds as follows: "We also again beg to remind the members (and the public generally) that this dispensary is in no sense a charity, as each person pays for what they actually receive in time of sickness." The grammar may be passed over. It goes on to urge the members to request their friends and neighbours to join, for by so doing "they incur no heavy doctors' bills, and have no need to apply for free medical aid. There is no wage limit, so that *application for membership is open to all.*" At the beginning of the year this dispensary, which is no charity, had 3074 paying and 3724 gross members. What gross members are does not appear, but the numbers had increased to 3214 paying and 4343 gross members. "During the year there have been 7765 consultations with the medical officers, in addition to many visits made at members' own houses." The gross profit for the year was £75 19*s.* 5*d.*, of which £12 went to the Council of the Provident Dispensaries Association, "and the balance, £63 19*s.* 5*d.*, was divided among the medical officers in proportion to the number of members attached to each." The dispensary has a reserve fund of £322 8*s.* 10*d.* It appears, therefore, that for each of the 7765 consultations a member of the medical staff was rewarded with something less than twopence, and the many visits to the members' homes were given in. If the value of the consultation is also less than twopence to the suffering member, it must also be remembered that he is in no sense a charity patient, "as each person pays for what they actually receive in time of sickness." Perhaps, however, the medical practitioner looks on it differently, and appraises the value of his services somewhat higher. It would seem a pitiful business. Anyone may join the dispensary, whatever his means, and may have a consultation for less than twopence.

The Clinical Hospital for Women and Children.

The annual meeting was held yesterday, and the report was an echo of those from most of the other charities. The out-patient department has been brought to the front of Cheetham Hill-road, with the result of very largely increasing the number of out-patients—viz., from 9517 in 1893 to 10,573 in 1894. The number of in-patients had been: women, 180; children, 725; somewhat fewer than in 1893. The Chairman said more money was wanted. They had spent £746 more than the income. The annual expenditure was £3000, and of this £1000 came from the Hospital Sunday and Saturday Funds, £1000 from investments, and for the other £1000 they had to depend on subscriptions and donations. A deficiency of £746 brings the amount derived from the last source down to £254, a somewhat sorry sum. In truth, the support of the various charities devolves on the few, who

give generously, and but little on the many, who give next to nothing. If those of the 700,000 inhabitants of Manchester and Salford who could without inconvenience give a small sum were to do so a different state of things would exist; but, it is to be feared, for a time only. There would still be the competition among the hospitals and the increasing willingness of the people—not of the poorest class only—to receive medical attendance without payment, so that the demands on the resources of the hospitals would increase apparently *pari passu* with their means.

Feb. 19th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Contract Bread.

AN action by a baker was recently brought in the County Court here against the King's Norton rural sanitary authority for £20 for breach of contract. There was a counter action for £5 5*s.* for breach of contract by the plaintiff. It seems that a contract was entered into for the plaintiff to supply the Infectious Hospital with bread made with best seconds flour at 4*d.* per 4lb. loaf. The evidence of the hospital steward showed that the bread was imperfectly made and unfit for patients, some of whom were paying patients; it was doughy, heavy, and not sweet. A medical man who happened to be a patient for six weeks gave corroborative testimony that the bread was dark in colour, coarse, and badly baked, but that the climax was reached when on cutting his bread one day he found the body of a cockroach inside. A verdict was given for the defendants on the claim, and for the plaintiff on the counter claim. Bread according to sample should evidently be looked after by the officers of such institutions.

The Dangers of Home-made Medicine.

A singular action was brought lately by a man against a firm of druggists to recover £50 damages alleged to have been sustained by the negligence of the defendants' servants in supplying to the plaintiff for the use of his wife a quantity of quinine greater than that demanded. The evidence went to show that at the defendants' shop was a notice "prescriptions accurately dispensed." The plaintiff's wife had neuralgia and he went to purchase five grains of quinine, for which he paid to a boy in charge of the shop 2½d. Having mixed the quantity given with port wine he gave some to his wife, who became very ill afterwards and remained so for some weeks. On returning to make inquiries it was found that five drachms had been given instead of five grains, the boy in charge admitting that he did not know the scales or the weights or the drugs. It was pleaded, in defence, that in law the defendants had no duty to the person to whom this drug was administered, and that there was contributory negligence on the part of the husband who had made the mixture. The judge summed up against the plaintiff both upon the facts and the law; he thought that there was contributory negligence on the part of the man, and he also held that there was no duty to the woman.

District Nursing.

The annual meeting of the District Nursing Society was held on the 14th inst. The report stated that the visits of the nurses had been 6000 in excess of the previous year. The expenditure had exceeded the income by £100. The usual votes of thanks were passed.

The National Society for the Prevention of Cruelty to Children.

The branch of this society located in this city is doing useful and valuable work in the direction of its aims. The annual meeting held on the 18th inst. showed that the number of cases dealt with was 425—namely, for neglect, 310; ill-treatment, 69; causing to beg, 17; assault, 12; exposure, 8; immorality, 3; other wrongs, 2. This is a lamentable roll in a civilised community, and worthy of the attention of philanthropists and benevolent people. It was stated that the National Society was £4000 in debt. Last year the branch sent £242 to the parent society, this year £101. The objects of the society were forcibly pointed out by different speakers and credit given to the officers for the careful manner in which the prosecutions had been conducted.

Feb. 19th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The University Court of St. Andrews.

A SPECIAL MEETING of the University Court of St. Andrews was held at the end of last week. The object for which the meeting was called was to reconsider the decision of a previous meeting respecting the Bill proposed to be introduced into Parliament having for its object to annul the affiliation of University College, Dundee, to the University of St. Andrews; and also to reconsider the decision regarding the foundation of two medical chairs out of the Berry Bequest, as has already been intimated in THE LANCET. Professor Purdie moved that the motion in favour of the Bill to annul the affiliation be rescinded, and this motion was seconded by Lord Provost Low. The amendment moved by Mr. Scott, and seconded by Dr. Balfour, was to the effect that it was undesirable to reopen the question. The motion was carried by 9 votes to 8. There was also read to the meeting an extract minute of the Senatus Academicus showing that the Senatus had by 11 votes to 4 passed a resolution disapproving of the proposed establishment of two additional medical chairs out of the Berry Fund. There was also read a communication from the Students' Representative Council stating that at a mass meeting of the students a resolution deprecating the decision of the court regarding the foundation of medical chairs had been carried by 93 votes to 3. Professor Knight moved: "That the University Court, having reconsidered the decision it came to at its meeting on Jan. 26th, rescinds the same, and refers the subject of the proposed medical chairs back to its business and finance committee, with instructions to bring up a report on the whole distribution of the Berry Fund at the earliest possible opportunity." Dr. Balfour moved and Dr. Dow seconded: "That the court adheres to the resolution as to the foundation of two additional medical chairs." This amendment was carried by 8 votes to 7.

Health of Edinburgh.

Small-pox still asserts itself in Edinburgh. Last week the fresh cases intimated numbered 12. The epidemic of measles also continues, 539 cases having been intimated last week, while there were 10 deaths. Thirty-seven fresh cases of scarlet fever were also intimated.

Economy at the Edinburgh Royal Infirmary.

At the meeting of managers of the Royal Infirmary on Monday it was intimated that there had been a decrease in expenditure for the quarter ending Dec. 31st of £876. As this does not seem to imply any diminished efficiency the result is most satisfactory.

Royal Edinburgh Hospital for Sick Children.

The annual report of this hospital shows that during the year 665 cases have been treated in the wards, while at the dispensary 8076 cases have been attended to. The income was rather more than £700 in excess of the expenditure. The amount received for the building fund was £6391, and it was intimated that the new hospital was expected to be ready before next winter. Money is urgently needed for carrying on to a satisfactory completion the erection and maintenance of this useful institution.

The Weather in Edinburgh.

The continued severe frost has led to much discomfort in Edinburgh, many houses having their water-supply entirely cut off by frozen water-pipes. At the end of last week, when there was a short thaw, much damage was done by flooding from burst pipes. People in many streets are being supplied with water in buckets directly from the mains. The continued frost has also told heavily upon the poor and the working classes, but measures are being taken to provide food and fire for the poorest.

Public Health of Glasgow.

During the past week the city death-rate has been exceptionally high, being at the rate of 43 per 1000 of the population per annum, a rate which has not been equalled for at least twenty years, though before that date such a mortality was not uncommon. In the previous week the rate was 32, while in the three preceding years during the periods corresponding to last week the rates were 20, 22, and 22. This alarming mortality does not seem to be due to any epidemic, though influenza has been very prevalent for at least a

fortnight; it is ascribed to the present extremely cold weather, many of the very young and very old, and those suffering from chronic chest ailments, being cut off. Small-pox has spread slightly, as was expected; three cases have been discovered during the week, and the number now in hospital is forty.

Association for Relief of Incurables, Glasgow.

From the report of this association it appears that its "Home" started last year with 94 patients, 16 were admitted during the year, and there had been 8 deaths and 6 removals, leaving 96 at the beginning of the present year. The number of those receiving out-door relief is 187. In the twenty years of its existence this association has given help to 850 out-door patients and 434 in-door, making a total of 1284. The financial year closed with a credit balance of £7 3*s.* 1*d.*

Feb. 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Regulations as to Revaccination.

AN Order in Council, published in the *Dublin Gazette*, defines the regulations that shall apply to revaccination by medical officers in dispensary districts in Ireland. The revaccination of persons applying for the purpose shall be limited by the following conditions: (1) that the person has attained the age of ten years, or if there be an immediate danger of small-pox the age of seven years; (2) that the person has not before been successfully revaccinated; (3) that there are no circumstances present which would render the operation undesirable; and (4) that the medical officer can afford lymph for the purpose without interfering with the performance of primary vaccination in his district.

Royal University of Ireland.

At a meeting of the Senate held last week the Royal warrant appointing Mr. M. F. Cox, L.R.C.S., a member of the Senate was received. The following medical gentlemen were appointed Fellows of the University:—George Sigerson, M.D., R. O. Cunningham, M.D., A. E. Birmingham, M.D., John J. Charles, M.D., Denis J. Coffey, M.B., Patrick J. Hayes, M.D., John J. Lynham, M.D., Joseph P. Pye, M.D., Wm. Thornley Stoker, M.D., and Johnson Symington, M.D. The following examiners were elected for the ensuing year:—In Medicine: Joseph F. O'Carroll, M.D. In Midwifery: John W. Byers, M.D., and Alfred J. Smith, M.B. In Medical Jurisprudence and Hygiene: Chas. Y. Pearson, M.D., and Antony Roche, M.R.C.P. In Materia Medica: F. J. Quinlan, M.D., and Wm. Whitla, M.D. In Ophthalmology: J. Walton Browne, M.D., and Louis Werner, M.B. In Pathology: James L. Smith, M.D., and Edmond J. McWeeney, M.D. In Sanitary Science: Sir Charles A. Cameron, F.R.C.S.I.

Sir Patrick Dun's Hospital.

A bazaar and *fête* will be held next May at Ball's Bridge in aid of the funds of this institution, which, in consequence of the land agitation, has had its endowment revenue permanently decreased by £1000 a year. This hospital was founded in 1800, and was partially endowed by Sir Patrick Dun. For many years it only admitted medical cases, and during the famine years of 1826-8 and 1846-8 upwards of 10,000 cases of fever were treated in the wards of the hospital. In 1866 it opened its doors for accidents and all sorts of cases—medical, surgical, and gynæcological. It now possesses isolation wards for the reception of cases of infectious fevers, and so the safety from infection of the inmates of the general hospital and of the public who visit them is provided for. Within the last ten years the number of accident cases admitted into hospital has more than doubled, and the total number of patients attended to in 1893 was 12,000, in which were included 5000 accidents. The staff of trained nurses have been very successful and their services are eagerly sought for; and it is interesting to note that Sir Patrick Dun's Hospital was the first institution in the country to establish in 1867 and develop the modern system of skilled and efficient nurses which has conferred such benefits upon society at large. I heartily wish the promoters of the bazaar (Ierne) every success, and I am confident that some thousands will be added to the funds of a well-managed and most deserving charity.

Dublin Branch of the British Medical Association.

The eighteenth annual meeting of the Dublin Branch was held last week in the Royal College of Physicians of Ireland. The report of the council was chiefly taken up with the condition of affairs in Cork between the medical profession and the benefit societies. A deputation from the Cork Branch waited on the council, and having explained how matters were the latter unanimously passed a resolution expressing their hope that the medical practitioners in Cork would maintain a united front against the attempt of the said societies to impose unworthy and inadequate terms on their medical officers. Dr. Atthill moved the adoption of the report, which was seconded by Dr. W. G. Smith, President of the Royal College of Physicians of Ireland, who said he was sure that the members of the branch would be unanimous in backing the action of the council in supporting the stand which the Cork and Southern practitioners had made against what would be an intolerable tyranny and an insufferable degradation to the profession.

Pharmacy Prosecutions in Dublin.

At the Southern Police-court last week the Pharmaceutical Society prosecuted a firm for having sold Fellows' Syrup, which contains strychnine, without it being labeled with the name and address of the sellers, in contravention of the Sales of Poisons Act of 1870. They were also prosecuted for retailing and dispensing poisons contrary to the Pharmacy Act of 1875. The defendants were fined £4 with £3 costs in each of three cases.

The Battle of the Clubs at Cork.

Dr. O'Sullivan took out summonses against two of the students who snowballed him, with the result that the magistrates, after a short consultation, dismissed the case against one of the accused and fined the other ten shillings and costs "for throwing snowballs." *Parturiunt montes, nascetur ridiculus mus.* On the counts were conspiracy and assault. The decision was received with loud cheers, which were renewed and renewed again until all the students had left the court.

Small-pox in Newry.

The epidemic shows no signs of abating, and there are 41 patients in hospital. All the deaths which have occurred, with one exception, were among those who had not been vaccinated at any time.

It is rumoured that Dr. Pye of Queen's College, Galway, has been offered the Presidentship vacant on the 24th prox. The post is worth £1200 a year with residence.

Dr. Glascott Symes died on the 17th inst. at his residence, 2, Gresham-terrace, Kingstown, aged eighty-five years. He was one of the oldest, if not the oldest, Fellow of the Royal College of Surgeons in Ireland. He practised for many years in Kingstown.

Feb. 19th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Sale of Antitoxin.

SINCE the 10th inst. anti-diphtheritic serum is procurable only at druggists' shops, the price being marked on each wooden box enclosing the glass tube. A half tube (10 c.c.) costs 3 francs, and a full-sized tube (20 c.c.) 6 francs, 25 per cent. of this going to the druggist. Certain fussy and, it must be acknowledged, over-thrifty journalists having expressed their astonishment at any price at all being charged for a product towards the supply of which the *Figaro* collected from the public no less a sum than £24,000, Dr. Roux has condescended to furnish the following explanation of this very reasonable step. Part of the sum above mentioned was first devoted to the purchase of 100 horses, which are now located at Garches. The keep of each horse involves an annual outlay of 1000 francs, thus making 100,000 francs, or £4000, for the entire stud. A 5 per cent. interest on the capital of 600,000 francs would yield only 30,000 francs a year, leaving a deficit of 70,000 francs to be made up by the sale of the serum. But no fewer than 50,000 doses of serum have been gratuitously distributed. Now, as each dose costs the Institute 6 francs, it follows that 300,000 francs have been given away. Nor must it be forgotten that the hospitals, *bureaux de bienfaisance*, &c. will continue to be supplied gratis with serum. With these considerations in one's mind, how can a

reasonable being expect the whole supply of serum manufactured at the Pasteur Institute to be given away?

The Activity of the Paris University.

The total number of students inscribed in the various Faculties of Paris (law, sciences, medicine, &c.) was for the year 1894 12,325, as against 11,914 in 1893. The number of examinations undergone was 8340 at the Faculty of Medicine, as against 6064 at the Faculty of Law, 3103 at the Faculty of Sciences, 11,000 at the Faculty of Letters, and 1951 at the School of Pharmacy. The number of readers at the Library of the Faculty of Medicine was 153,754 and the number of volumes lent 275,000. At the School of Pharmacy the corresponding figures were 16,605 and 76,813 respectively.

Paris Sausages and Horseflesh.

The Comité d'Hygiène tells us that an inquiry recently conducted reveals a greatly increased consumption of horseflesh in Paris. Thus in 1892 there were killed for this purpose in the Paris abattoirs no fewer than 20,000 horses; but it must not be supposed that all this horse meat was sold by the 120 horse butchers found in Paris. The larger portion serves for the manufacture of sausages. Now the sanitary inspection of the abattoirs of Paris is so conscientiously conducted that it may safely be said that not a particle of horseflesh is exposed for sale that has not been carefully examined by a capable veterinary authority. The increasing popularity of the horse-sausage impelled the Syndicat de la Charcuterie de Paris to demand a compulsory declaration of the nature of the meat used for this purpose. But the difficulty was how to distinguish between the *chevaline* and the ordinary contents of sausages. Now it would appear that, thanks to two German investigators, MM. Edelmann and Brautigam, the problem is solved. The meat is thoroughly chopped up and boiled for thirty to sixty minutes in four times its weight of water. The bouillon thus obtained has added to it, after cooling, 5 per cent. of commercial nitric acid, and it is then filtered through paper. A few cubic centimetres of the filtered product are poured into a test tube, and a few drops of iodised water (saturated while hot) are allowed to flow down the sides of the tube. With the horse bouillon there is formed a violet-red-brown ring which is not developed in veal, beef, mutton, pork, dog, or chicken bouillon. The hot saturated solution of iodine may be advantageously replaced by Gram's solution, which yields a more pronounced colouration. The Comité d'Hygiène has, therefore, determined to give satisfaction to the Syndicat, and henceforth horse sausages will be labeled accordingly.

The Sore-throat of the Menstrual Period.

M. Raymond Petit[1] is disposed to consider the above curious ailment an outcome of the local activity of the streptococcus. He points out that although the prognosis is generally good an abscess may develop or erysipelas of the face appear. He recommends the use of antiseptic napkins during menstruation, and would have every menstruating woman employ systematically antiseptic gargles and mouth washes, woman constituting during her genital periods (accouchement, menstruation) a favourable medium for the growth of the streptococcus. I may add in support of M. Petit's contention that having recently to attend a young English girl for sore-throat during the menstrual period I succeeded in cultivating in serum colonies of the streptococcus, no other micro-organism being present.

Death of Dr. Dujardin-Beaumetz.

This morning the largely attended funeral service of the above well-known physician took place at the ancient church of St. Germain-des-Près. This distinguished therapeutist died on the 15th inst., aged sixty-two, at Beaulieu-sur-Mer (Alpes-Maritimes), where he had gone to recruit his shattered health. I hope to be able to give next week a *résumé* of his scientific career.

Feb. 19th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The Health of Leo XIII.

THE issues depending on the Pope's health are indeed momentous; his demise would bring to the front a question which has lain undisturbed since 1523. That year was the last in which a non-Italian Pope sat in the chair of St. Peter; but for some time it has been seriously considered, in Italy as well as abroad, whether a departure from what is only consuetudinary law might not be taken. That a French, an Austrian, or a British cardinal might succeed to the Pontificate has but to be suggested to open up a battlefield of international jealousies. With this in prospect the wish that Leo XIII. may "see the years of Peter" or live to those of Pio Nono is sufficiently intelligible and explains the almost feverish anxiety with which reports as to his health are scanned and discussed. On Dec. 15th, 1894, I announced in THE LANCET the precautions taken by Dr. Lapponi in presence of the catarrhal symptoms under which His Holiness was labouring. On the 2nd inst. I described the return of the same symptoms between Jan. 10th and 16th, and to-day I resume the thread, *a titoli di cronista*, as Italians say. On the 10th inst., after celebrating mass in his private chapel before some twenty privileged persons, His Holiness held no audience, but retired to the seclusion of his apartments. He felt weary and worn out, and certainly looked more emaciated than usual. For some days previous the catarrhal symptoms, never wholly got rid of, had become aggravated, and his voice even on the 10th was still feeble and hoarse. Shortly before, during the religious function for the anniversary of Pio Nono's death, his exhaustion was manifest—his chanting the prayers of absolution being scarcely audible by those at a few paces from him. Dr. Lapponi is most vigilant as to the heating of the Pontifical apartments, and, on finding that the temperature had been raised above what His Holiness could bear with comfort, reduced it at once to a less relaxing degree. But with all his vigilance and authority it seems impossible to restrain the Pope from over-exertion, mental if not physical. He revels in work, and keeps in personal touch with high-placed ecclesiastics, Italian and foreign, and with the heads of the various Catholic congregations; while even at night he labours indefatigably in preparing documents for the guidance of his representatives in the two hemispheres. Such energy displayed by an octogenarian suffering from senile anæmia and subject to a catarrhal cachexia increases the responsibility of his body physicians and quickens the anxiety of the diplomatists accredited to the Holy See, knowing as they do that in the event of the Pope's decease the fact will be kept undivulged till the cardinals present in Rome have completed certain acts preliminary to the Conclave—acts prescribed by a secret Bull issued four years ago by Pope Leo himself.

Cold and Famine.

The severity of the season has told heavily, particularly in the rural districts, all through Italy. A fuel famine has followed the food famine, and almost within the gates of Rome have been deaths from sheer cold accelerated by malnutrition. At Sambuci in the Sabine country the villagers have been subsisting on herbage and weeds, and even if wholesome food is forthcoming they have no fire with which to cook it. Too wretched and improvident to face any such visitation, the *adscripti glebae* of Italy succumb to their fate with the helpless, hopeless submission of the fatalist, and, as at Sambuci, leave it to the chance-comer in their neighbourhood to reveal their misery to the great world. Since the confiscation of the conventual and monastic houses by the State the charity these used to dole out in their respective localities has had no adequate equivalent, and Parliament seems too engrossed with its own internecine quarrels, when not voting subsidies for Abyssinian campaigns, to attend to the far more pressing duties within its legitimate jurisdiction. Those contrasts are not hopeful for the Italy of the future, and the apathy of the upper and middle classes of the population must be replaced by a "sense of citizenship" if the country is to assert its claim to be a Great Power.

Death of Dr. Francesco Ziliani.

A striking personality has just left the stage in Dr. Francesco Ziliani of Brescia, one of Garibaldi's Thousand, who with Drs. Ripari and Boldrini constituted the sanitary corps of the romantic expedition which liberated the two Sicilies. Like Bertani, the General's body surgeon, whose Codice Sanitario has rehabilitated the public health of Italy, he was a man of austere virtue, carrying into public and professional life those moral standards to which he had conformed during the long years of silent preparation in the study and active service in the campaign. Italy is losing rapidly the few survivors of that heroic generation, and Dr. Ziliani's death on the 13th inst. makes her all too appreciably a man the poorer.

Feb. 17th.

[1] Gazette Hebdomadaire de Médecine et de Chirurgie, Feb. 2nd and 9th.

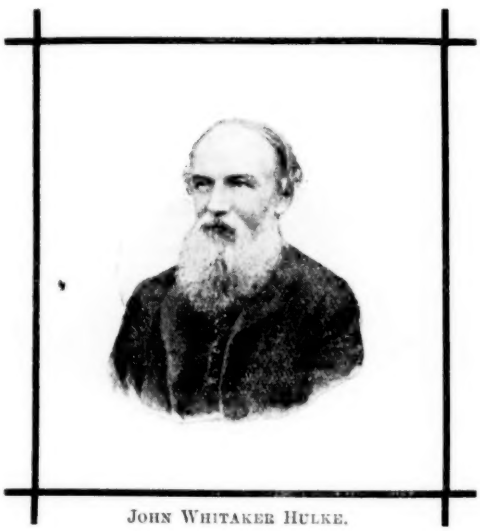
Obituary.

JOHN WHITAKER HULKE, F.R.S.,

PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

IT is a singular and melancholy coincidence that in so short a space of time as fifteen months the titular heads in this country of the two branches of the art of medicine should have died in office. It is but fifteen months since we chronicled the death of Sir Andrew Clark, which occurred on November 6th, 1893, during his tenure of the Presidency of the Royal College of Physicians of London; and now the medical profession not only of this country, but of all countries, has learned with deep concern of the death of Mr. Hulke, the President of the Royal College of Surgeons of England, and senior surgeon to the Middlesex Hospital. The coincidence to which we have referred is accentuated by the curious fact that Sir Andrew Clark died on Mr. Hulke's birthday.

There are some men whose lives are the despair of their biographers, but this is not generally the case with the distinguished surgeon. Widely read the surgeon often is, cultured it is now the rule that he must be, but his scheme of life, the issues that he has at stake, the work that he does, and the work that he hopes to do are not usually complex, so that his public life is wont to be comparatively easy to write. It consists of a record of duties performed whose value is estimated by comparison with the performances of others. But this is not so in the case of Mr. Hulke. For Mr. Hulke was a many-sided man, so that to estimate him properly more than a mere regard to the particular eminence to which he attained in his branch of the science of healing is required. Viewed as a surgeon Mr. Hulke had a career of singular distinction as well as of wide range. But he was also one of the first geologists in England. He was a real linguist—one with the gift of tongues. While keeping up a more than ordinary acquaintance with the classics, he was a fluent and accurate French and German scholar, a learned Shakespearian, and possessed at the same time of a working knowledge of Italian. He was a first-rate botanist, both in lecture-room and field—as may sufficiently well be seen from the opening half of the Hunterian Oration, which we print in our issue to-day, but which his health did not allow him to deliver. He was a sportsman of the old-fashioned sort, making his pursuit of the prey with rod or gun subservient to his desire to acquire accurate knowledge. And he had acquired it to this extent, that he was a distinctly learned ornithologist. He was an excellent diagrammatic artist, painted in water-colours, and was not unskilled in plastic work. As we have said, it is not easy to write a biography of such a man, for he excelled in so many directions that to narrate them all must give to his biography an appearance of fulsomeness.



JOHN WHITAKER HULKE.

John Whitaker Hulke was born on Nov. 6th, 1830, being the elder son of a well-known and widely respected general practitioner at Deal. The original family name was Hulcher, his ancestors being Dutch by origin, who had escaped from Holland during the Spanish persecutions under Philip II. and Ferdinand, Duke of Alva, and settled on the Kentish coast. There for some two hundred years they have followed the vocation of medicine. He was educated at King's College School, and after a sojourn in Germany entered at the age of nineteen the medical school of that institution, where he was dresser to Mr. (afterwards Sir) William Bowman, and house surgeon to Sir William Fergusson. It was while he occupied this position that he attended the Duke of Wellington in his last illness, his father being the Duke's regular medical attendant and obtaining leave to avail himself of his son's services as assistant. In 1854, when the Crimean War broke out, he was early to volunteer, and at the beginning of 1855 was appointed assistant surgeon to the British Civil Hospital at Smyrna. Thence he was sent to Sebastopol, and in that awful campaign of irremediable sickness, gross mismanagement, and gallantry as often as not ineffective, bore himself in the opinion of everyone as a soldier should bear himself. On his return from the East he became medical tutor of King's College Hospital, and having previously been made a Fellow of the Royal College of Surgeons of England was appointed in 1858 assistant surgeon to Moorfields Hospital, and in this early devotion to ophthalmology we can trace the influence of his distinguished master, Sir William Bowman. He had previously been elected assistant surgeon to King's College Hospital, under an absurd arrangement by which the term of office of the assistant staff was limited to five years. He duly served his allotted period, and was appointed, together with Murchison, a colleague at King's, to the Middlesex Hospital, of which institution he was the senior surgeon at the time of his death.

Such is the bare outline of Mr. Hulke's career as a surgeon; we now propose to consider this a little more in detail. His earliest mark was made in ophthalmology. He obtained the Jacksonian Prize of the Royal College of Surgeons of England for an essay on the Morbid Changes of the Retina; his treatise on the Use of the Ophthalmoscope, published as far back as 1861, formed an excellent introduction for most of the profession to the new system of intra-ocular examination; his Arris and Gale Lectures delivered before the Royal College of Surgeons of England, and subsequently published in our columns, dealt with the Minute Anatomy of the Eye; and, lastly, he was made a Fellow of the Royal Society in recognition of the value of his papers on the Anatomy of the Retina in Amphibia and Reptiles. But although so highly and widely recognised as an authority on the eye, Mr. Hulke was no less esteemed by the profession as a general surgeon, and the record of his work in the wards of Middlesex Hospital remains a monument to his skill and patience. There are no brilliant departures associated with his name, but he was absolutely painstaking and wise, and quick to see what surgical movements would stand the test of time. He was a supporter of aseptic doctrines at a time when many surgeons of his date were but half converted to these doctrines, and he was to a certain extent a pioneer in cerebral surgery, though all the teaching of his masters must have biased him to look upon interference with the brain as a very serious matter. As an operator he was not showy, and perhaps not entirely free from the imputation of being a little slow, but he was admirably careful, and his intimate anatomical knowledge counted for something in the marked caution of his procedure. As a clinical teacher he had few, if any, equals in London. He was lucid, learned, and simple. Where a point required exposition he was certain to know everything that could be said, but he was never tempted into needless display of erudition, and never talked for talking's sake. He was a little intolerant of ignorance in his pupils, but the idlest and most irreverent student always saw in him a man who had a right to be intolerant if he chose.

We have briefly referred to Mr. Hulke's knowledge of botany, but his position as a geologist merits more extended mention. He was one of the first authorities in the world on vertebrate palæontology, and contributed many valuable papers dealing with the Iguanodontia, Ichthyosauria, and Crocodilia to the memoirs of the Geological Society. For three years, from 1882 to 1884, he was President of the Geological Society; in 1887 he received the Wollaston gold medal, which is the highest award it is in the power of the society to bestow; and in 1890 and 1891 he acted as the society's foreign secretary. He has left behind him a large collection of specimens, mostly excavated by his own hands from the Undercliff in the Isle of Wight.

Few men have held more official posts than Mr. Hulke. At the time of his death he was President of the Clinical Society of London. It may not be out of place to repeat here the words of the retiring President, Sir Dyce Duckworth, when inducting his successor: "You have elected to-night as my successor one whom we all respect and acknowledge as a master of the surgical art, one whose modesty, rectitude, and fearlessness are only equalled by his skill and kindness of heart. Mr. Hulke will, I feel sure, add lustre to the post he comes to fill." From 1886 to 1887 he was President of the Ophthalmological Society, and he had also been President of the Pathological Society of London, and had been for many years, and was at the time of his death, librarian of the Royal Medical and Chirurgical Society. He was elected President of the Royal College of Surgeons, England, in 1893, in succession to Mr. Bryant, having been a vice-president from 1888. He was a member of the Court of Examiners for ten years from 1880. His greatest work in connexion with the Royal College of Surgeons was undoubtedly the formation of the Research Laboratory of the Conjoint Board. The scheme for this was Mr. Hulke's, and he was chairman of the Joint Laboratories Committee from its foundation. The work that has been done and is now doing there speaks sufficiently for the wisdom of the scheme. At the Royal Society—of which he was elected a Fellow in 1867—he served on the Council during 1879, 1880, 1888, and 1889; and was also a member of the Scientific Relief Committee. His communications to the Transactions of the society were numerous, and the last of them was read before the society on May 12th, 1892. It was a paper on the Shoulder-girdle in Ichthyosauria and Sauropterygia, in which he controverted the views of Professor H. G. Seeley.

Such was his arduous and many-sided work, and on all of it he brought the same qualities to bear—punctuality, the prudence of critical insight, and extreme conscientiousness. As a hospital surgeon he was always in attendance, always in time, and always thorough in his ward work. At the College of Surgeons he was never known to miss a lecture or to be a minute late. He attended every sub-committee and with unfailing punctuality. He was a man of very strict character, exhibiting not infrequently an austerity that amounted to harshness. Deeply religious, his Protestantism was of an intolerant kind; and of a relentless probity of character, his judgments now and again seemed unnecessarily severe. Yet many knew that he had another side to his character, and that, in addition to the rectitude and energy which gained him the universal and marked esteem of the whole profession, he possessed softer and more endearing qualities. He was exceedingly gentle and sympathetic with his patients, never for a moment lapsing into the attitude of the operator towards the subject. His acts of great personal kindness were numerous and his charitable desire to do good undoubted. We came into contact with Mr. Hulke in the matter of charity not infrequently, as he acted as an Almoner to our Relief Fund, and we know him to have been deeply alive to the needs of his poorer brethren, and most earnestly anxious to relieve them.

His strict standard of duty for others he held up to himself, and devotion to duty was doubly answerable for his death. He took no holiday during the past year, his time being too occupied to permit him to do so, and the incessant and acute strain was telling upon him at Christmas. This much he admitted. On the night of Thursday, Feb. 7th, a terribly bitter night, he was summoned to the hospital to operate upon a case of strangulated hernia, from which he did not return until 3 30 A.M. On the following day he had a little bronchitis, but did not keep his bed. Indeed, he operated on Saturday at the Middlesex Hospital on a case of cerebral abscess, and went to the wards again on Sunday (Feb. 10th) and Monday (Feb. 11th). But later in the day he had to recognise that he was seriously ill, and the bronchitis increasing, pneumonia supervened, and he died on Tuesday, Feb. 19th, about noon.

Mr. Hulke leaves behind him no children, but a widow, who, we regret to learn, is suffering from a serious attack of influenza, and two nephews, one of whom is a member of the profession.

A special meeting of the Clinical Society of London was held on Wednesday evening last to consider arrangements necessitated by the lamented death of the president of the society. The following resolution was passed, and a copy of it forwarded to Mrs. Hulke: "The Council of the Clinical Society of London has learnt with deep regret of the death of the President of the Society, John Whitaker Hulke, F.R.S., one of its original members, among its most earnest supporters, a highly gifted and very learned surgeon, who has filled the office of president with his wonted punctuality, urbanity, and zeal. The Council begs to offer its heartfelt and respectful sympathy to Mrs. Hulke in her great sorrow."

The interment will take place to-day (Saturday, 23rd) at Deal. A memorial service will be held at St. James's, Piccadilly, where the late Mr. Hulke was churchwarden, on the same day at one o'clock.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. A. L. Loomis, Professor of Medical Pathology in the University of New York.—Dr. Sancho Martin, Professor of Midwifery in Valladolid.—Dr. Regnauld, Honorary Professor of Medical Chemistry in Paris.

THE INDIAN MEDICAL CONGRESS.

THE SECTIONS.

MEDICO-LEGAL MEDICINE.

DEC. 26TH, 1894.

THE HON. W. R. KYNSEY, C.M.G., F.R.C.P. Irel., delivered his presidential address. After a few introductory remarks he said: "The title of the Section sufficiently indicates its scope and object, and all here will agree with me that there is no branch of our profession more neglected than medical jurisprudence. Its history in Europe and the East, while full of great triumphs, is also full of cases where most serious consequences resulted from inexperience and ignorance, due to the fact that few make the scientific questions involved the subject of definite and intelligent study. To no science are the remarks of Ruskin more applicable: 'The greatest thing a human soul ever does in this world is to see something and tell what he saw in a plain way. Hundreds of people can talk for one that can think, but thousands can think for one who can see.' In the relations which exist between medicine and law the testimony of experts is necessary for the purpose of arriving at truth, which is the ultimate object of the medical and the legal professions, a trial being merely a means for obtaining it. The interest of good government, the sacredness of human life, and the welfare of man demand that no one should be accepted as a medical witness who has not made a special study of the many sciences upon which medical jurisprudence is founded. Medical evidence is important in all countries, but in the East it is often the only evidence at all to be relied upon, and on it alone often hangs the liberty or life of a human being."

[Mr. Kynsey then drew attention to the increase in all countries of communications dealing with criminology and continued:]

"The term 'criminal anthropology' was first given by Lombroso to that branch of morbid psychology which is concerned with the study of the physical and psychical peculiarities found in criminals, and it deals with all the problems connected with the criminal as he is in himself and as he becomes in contact with society. He maintains that by its means it is possible to determine the probability of a prisoner's reformation and the best methods by which this can be effected; but it cannot, of course, be used to discover the author of a crime, although by means of measurements prisoners can be easily identified accurately." He next quoted how criminals had been classified by Benedikt upon a pathological basis, and by Enrico Ferries upon a clinical basis.

"The Italian school, and those who think with them, consider criminality from a scientific point of view, and assert that it is a neurosis originating either in an inherited or an

acquired condition of the brain, which may be actual disease resulting in degeneration, or the non-development of certain faculties, the existence of which would preclude the possibility of crime. Criminality is a sign of physical degeneration of the nerve centres, and crime its outward expression. Crime is not, then, the result of personal spontaneity, but springs from the secret forces of organisation, and is a symptom of moral alienation due to inherited vice of character over which the criminal has no more control than the lunatic. They answer the question, Why is a man a criminal? by replying: For the same reason that another man is a moralist or an honest, law-abiding citizen. A criminal inherits a brain incapable of generating moral faculties, or through the influence of his environments his mind does not evolve sufficient moral strength to control his appetites and passions. It is no more difficult to believe that brain development in the evolution of mind may stop short of completely unfolding the moral faculties than it is to believe that it may, as it certainly does in many cases, stop before high intellectuality is attained. Whether a man will commit crime at all will depend to a great degree on his constitutional characteristics and education, and the nature of his crime on his environment and inherited tendencies, or on both. It is difficult to say how much can be attributed to heredity and how much to environment, as the fall from virtue to vice in anyone is possible; but the number of healthy, carefully brought up children who adopt a career of crime is very small and such cases are generally curable. The habitual and instinctive criminal, on the other hand, comes from a family in which inebriety, insanity, and criminality are hereditary, and whose members are surrounded by physical and social defilement. As there are anomalies, monstrosities, infirmities, and natural imperfections in the physical and intellectual world, there are the same in the moral, and the criminal differs physically, mentally, and morally from the honest member of society as much as the imbecile from the genius."

[Mr. Kynsey referred to Maudsley's account of the characteristics of the criminal class, adding some remarks of his own upon the physical and mental peculiarities of the criminal, and proceeded:]

"The criminal is not necessarily diseased, but there generally exists a latent neurotic bias, if not actual neurotic disease, such as epilepsy, inebriety, or insanity; and he is frequently scrofulous or tuberculous, all indicating nervous and bodily degeneration. Mentally he can reason about the crimes committed, but he cannot comprehend any moral wrong, and, conscious of punishment for past offences and almost certain of it for future ones, rushes wildly, heedlessly, remorselessly, into the vortex of criminality, and never pauses until the arm of the law interferes to protect society. Despine, in his exhaustive study of the criminal's mental nature, says: 'There must be something abnormal in the disposition of criminals when they yield with the utmost facility to desires which would excite the strongest repugnance and horror in a truly moral man. Does not this abnormal state reveal itself in the clearest manner when, contrary to what poets and moralists have represented, we see the wretch who has committed a crime exhibiting no symptoms of remorse, but rather a disposition to repeat the same criminal act?' He drew from this the conclusion that the criminal is morally insane, usually incurable, and that he should be treated in the same way as the intellectually insane person. The heredity of specific characters is a well-established fact, and the transmission of individual form or external physical characters, and even peculiarities, is universally acknowledged. The child resembles either the father or the mother, or both, or some member of the ancestral line, in general form, features, and even in the colour of the hair and eyes, the tint of the skin, and in general expression. Even deviations from the normal type are handed down through several generations, and may possibly establish new species. The functions of the organism, instincts, natural and acquired, the perceptive faculties through which impressions of the outer world reach the brain and are there converted into conscious sensations, memory, emotions, reason, will, the appetites, passions, and moral impulses, normal and abnormal, and the pathological conditions to which physical and mental life are liable are all capable of transmission under the laws of heredity from parent to offspring. 'Like begets like.' The hereditary character of crime was recognised in remote antiquity. Aristotle tells the story of the man who, when his son dragged him to the door by the hair of his head, exclaimed, 'Enough, my son; I did not drag my father beyond this.' Inebriety, insanity, and crime are closely related; each is the result of a pathological condition of the brain, each is a stage in the progressive degeneration of a family, all are hereditary, and undergo mutual metamorphosis during the stages of transmission."

[Statistics were quoted in support of this statement.]

"I have endeavoured to show that many eminent writers look on crime as the result of disease of the brain, and in consequence advise the treatment instead of the punishment of this morally diseased class, and urge that the problem of prison administration is how to treat prisoners with the least burden to the community and at the same time secure ultimately the best advantages to the criminal. 'The prison is the battlefield between vice and virtue, with the advantage of position and numbers on the side of vice.' The modern school on this vexed question have no faith in punishment as such, but believe in correctional treatment, their motto being that every prisoner carries with him the possibility of good citizenship. Prison treatment should be, no doubt, both punitive and deterrent, but should also have for its object the permanent improvement rather than the deterioration of the prisoner's character; and unless gaols are properly managed on these principles the State practically undertakes the criminal education of the dangerous classes. Crime can never be diminished through fear of punishment; and the benefits to be derived from the conviction and imprisonment of criminals increase in proportion as penal and retributive methods give place to more enlightened reformatory methods. In America from 60 to 70 per cent. of juvenile prisoners are reformed. The causes of crime have been most carefully classified under *cosmic*, such as climate and diet; *biological*, such as personal peculiarities, anatomical, physiological, and psychical; and *social*, which includes economic perturbations, alcoholism, pauperism, &c.; but the chief factors have always been and ever will be heredity—a vicious life, alcohol, a woman, a knife, and caste, race, and religious prejudices. If it is admitted—as it must be, I think—that every truly criminal act proceeds from a person who is temporarily diseased the older views on punishment will have to be considerably modified. As it has hitherto been directed at the offence, and it was not considered necessary to take the offender into account at all, the result has been most unsatisfactory, as statistics on the phenomena of recidivism prove, and the main cause of recidivism is the failure of prisons to act as reformatories. Laloue, the Inspector-General of Prisons in France, says: 'With our existing system twenty-four hours' imprisonment suffices under certain circumstances to ruin a man.' 'As to the reformation of the criminal,' remarks Dr. Paul Aubrey, 'that is a myth; the prison is still the best school of crime which we possess'; and a young Italian thief said, 'The houses of correction are much more houses of corruption.' In this place, for obvious reasons, I can only very briefly allude to the main proposals of prison reformers. They are: 1. To remove the belief that the criminal is an average human being, but to look upon him as an abnormal member of society, and to make the prison 'a moral hospital' for his treatment and cure. Sir Thomas Moore long ago said that the end of punishment 'is nothing else but the destruction of vices and the saving of men.' 2. To abolish the definite and predetermined sentence, and to substitute for it an indefinite one. This removes from the judge, who must be ignorant of the nature of the individual before him, the power of definitely fixing the period of confinement in prison, and transfers it to the managers of the reformatory, who have the power, if they see fit, to let prisoners out on *parole* (ticket-of-leave) at any time after a probationary period. 3. To improve the prison staff, under the belief that the prison warder of to-day is as little fitted for the treatment of criminality as the hospital nurse of half a century ago was for the care of disease. No one should be appointed to the care of criminals who has not been specially trained for the purpose. 4. To educate the criminal physically, mentally, and industrially, by means of skilled teachers, so as to win him back from the anti-social to the social world, and to give him when he leaves the prison a trade or means by which he can earn an honest livelihood. 5. To introduce a sound system for the identification and registration of criminals. The recognition of the habitual criminal is one of the most delicate and difficult functions of the police; they are blamed if they fail in identifying, and doubly blamed if they mistake an innocent person for the real offender. Both identification and registration can be accurately and unimpeachably carried out by the anthropometric system of

Bertillon. It is worthy of note that the Japanese have had for ages a system of prison treatment very similar to that which our most advanced thinkers now recommend. 6. To deal with the occasional criminal by substituting 'liability to punishment' for actual detention in gaol. This Section is not the one to deal with the question of prison mortality, as its consideration would involve a history of the diseases of prisoners and many other points; but as it is a subject of the deepest interest to all engaged in gaol administration in the East I may be permitted to make a few remarks. Writers at home are very fond of contrasting the death-rates of British and Indian gaols, to the detriment of the latter from want of knowledge. I am certain everyone who has had the management of prisoners in the East will allow that mortality in prisons depends largely upon:—1. The class of prisoner admitted, whether he is selected, the nature of his occupation in the free state, and whether he comes from a malarious or healthy district. The enormous influence of malaria in augmenting Eastern prison death-rates has not been taken sufficiently into account, and it is a curious fact that the removal of prisoners from malarious districts to healthy ones is often disastrous. 2. The discipline and nature of his labour in gaol. The stricter the discipline and the more *continuously* prisoners are made to work, even irrespectively of its amount, especially if never accustomed to work before, or if they are employed at work to which they were previously unaccustomed, the higher the death-rate. 3. Diet, whether there is change to unaccustomed food and whether it is too much or too little. 4. The early detection and treatment of disease. My experience is that, as well as malingering, there is a good deal of concealment of disease and actual indifference about health. If Eastern prisoners could be treated as the following extract shows they are pampered in England I have no doubt their sick and death rates would be as low:—'The early average death-rate for the 160 years ending March, 1878, was 11·6 per mille, while for the ten years ending March, 1888, it was 8·1. The Commissioners state that imprisonment as now generally conducted in England is a condition more or less akin to physiological rest. The struggle for survival is suspended and the prisoner appears to feel that the prayer for daily bread is rendered unnecessary by the solicitude of his custodians. Tranquility of mind and freedom from anxiety are leading characteristics of his life.' The second subject I wish to say a few words about is insanity. There never was a period of human history when insanity did not exist, and it would be strange if this were not so with the brain, the organ of mind, liable to have its development arrested, its functions disordered, or its action suspended, and the type of mental and nervous disease which exists in different races and ages is exactly that form which is in accord with their respective mental development—the most common in the savage is imbecility, in children idiocy. There can be no moral insanity where there is no moral sense, and no ideational insanity in infants because they have no ideas. The period of the world in which we live is characterised by an enormous increase in frequency of neurotic affections, due to the unparalleled activity and progress, rush and worry of modern life, a life of anxiety and high tension. The rapid cultural development of our time, gratification of ambition, change in the whole style of existence, strife of competition, and the desire to grow rapidly rich have made nations and individuals discontented. Insanity, like criminality, waits on civilisation, which Carlyle says 'is merely a covering underneath which the savage nature of man burns with an infernal fire," and the reason for this is not difficult to explain, as there can be no doubt that there is an increasing complexity of the brain, the result of this higher civilisation, march of education, and struggle for existence, and, like all machinery, the more delicate its mechanism becomes the more liable it is to get out of order and the more difficult it is to readjust it. One melancholy evidence of the increase of insanity is the increase in number and size of the asylums which Christian benevolence and statesmanship have established for the custody and treatment of persons mentally afflicted. In Ceylon the admission-rate continues to increase, the percentage of recoveries on this rate being about 52 per cent., and the cases are of the usual mental types. The uneducated brain of the native is not usually roused to excessive fabrication of ideas even by insanity, his mental symptoms being more a monotony of noise, bad language, and filthy conduct. In all delusional cases the patients are persons of education. The causes are even more difficult to ascertain than in Western countries, but all experience is against the influence of opium as an important factor in its causation, but there is no doubt about *bhang* being morally and mentally injurious. In a recent inquiry into the question with the Inspector-General of Prisons, we found no satisfactory evidence that the abuse of opium as distinguished from its use was on the increase, nor was there any evidence to show that the abuse of the drug has extended beyond a very small section of the community, and the admission to hospitals and asylums has not been influenced to any appreciable extent thereby. We were convinced of the enormous benefits which resulted from its judicious use, and we had reason to believe that a not inconsiderable portion of the drug imported was used in the treatment of animals; further, that any considerable diminution in its importation would involve a considerable increase in human and animal suffering. We were strongly of opinion that the use, even the abuse, of opium had not tended in any way to increase crime or insanity, though in certain cases it may have exercised an enfeebling influence over mind and body. As regards *bhang*, we found many cases on record in which it had been the immediate cause of crimes of violence, and we advised that its use should be restricted as far as possible by means of a heavy import duty and the prevention of its cultivation in the island. My belief is that natives who use opium have selected the least harmful form of stimulant—one which rarely acts as a cause of crime, insanity, or disease—and that any unwise interference will practically substitute alcohol, with all its dreadful immediate and remote effects, for opium. The agitation against it seems to be the result of ignorance. I have seen a few cases of that curious and dangerous condition known as 'running amuck,' or 'amok,' among Malays, due to *bhang*, and, perhaps, to opium. It is, no doubt, a transitory form of madness closely related to the *epilepsia cursiva* of Bhootias, in which the person commences to run and then falls down in a fit. Wallace suggests 'that it is a resort to what appears to a savage to be a kind of honourable suicide on the part of a man who for some reason is plunged in sorrow and dejection, thinks himself wronged by society, or to whom on account of misfortune life has become a burden.' Trusting that my remarks have not been too long, and thanking you for your attention, I now give place to those who have prepared papers which we have all come here to hear read."

PROCEEDINGS IN SECTION.

DEC. 26TH, 1894.

The following is an abstract of a paper read at the Congress:

The Necessity for an Act restricting the Free Sale of Poisons in Bengal.

Surgeon-Captain J. F. EVANS, M.B., and Assistant-Surgeon CHUNI LAL BOSE, M.B., F.C.S., Chemical Examiners to the Government of Bengal, contributed a paper on the Necessity for an Act restricting the Free Sale of Poisons in Bengal. After a very carefully prepared introduction, in which they entered exhaustively into the prevalence of poisoning in Bengal and the nature of the cases of poisoning, and gave a general summary of the history of poisoning in India, they proceeded to consider their proposals for restricting the sale of poisons. After passing in review previous recommendations for restricting the sale of poisons and their outcome they continued:

"The measures we propose may be summarised as follows: (*a*) an Arsenic Act; (*b*) the amendment of those sections of the Bengal Municipal Act and Calcutta Municipal Consolidation Act which relate to the sale of drugs; and (*c*) the amendment of those sections of the Opium Act I. of 1878 which relate to the retail sale of opium."

The Arsenic Act.

[Surgeon-Captain Evans and Assistant-Surgeon Chuni Lal Bose here brought forward a table showing the imports and exports of arsenic at Calcutta during the last twelve years, and continued:]

"From the table it will be seen that a very considerable quantity of arsenic remains in the country. Last year the quantity was 30 tons. The fatal dose of arsenic for an adult is two grains. How then, some might say, is the poisoning by arsenic to be prevented, when it is such a deadly drug and when such large quantities are annually imported. But thirty tons are a small quantity compared with the 2875 tons which constitute the average annual output of white arsenic

at the tin works of Tavistock in Cornwall; yet fatal arsenic poisoning of a criminal kind is not as a consequence frequent in the neighbourhood of Tavistock. The larger portion of the arsenic imported into India is used in trade for such purposes as the cleansing and preparation of hides, paper, paint, wooden posts, &c., and occasionally also for agricultural purposes. The yellow variety of arsenic, which contains from 20 to 30 per cent. of white arsenic, is used as a pigment and largely as a depilatory. Without presuming that the proposition is complete and free from defect, or couched in the proper legal phraseology, the regulations of the sale of arsenic which we would propose take the following shape:—

"That certain individuals or officials shall be entrusted by Government with the duty of granting licences for the import, sale, purchase and possession of arsenic, after having ascertained to their satisfaction that the applicants for such licences are fit and proper persons to be granted the same.

"That no arsenic or arsenical preparation recognised as a poison shall be bought or sold without a licence except on the prescription of a licensed medical man, with certain exceptions relating to the practice of indigenous medicine to be hereafter specified.

"That persons desiring to import arsenic into the country must obtain a licence authorising its import, and must undertake to keep the arsenic in safe custody and to sell it only to persons producing a licence authorising them to purchase arsenic, all such sales being registered with an entry of the date, the quantity sold, and the name and address of the purchaser.

"That dealers in arsenic, whether wholesale or retail, must obtain a licence authorising them to buy, sell, and possess arsenic; that they must undertake to buy from and sell to licensed persons only, and to carry on their business generally under the same conditions as the importers except in so far as its sale on medical prescription is concerned.

"That persons requiring arsenic for manufacturing and other purposes not being those of sale, retail or otherwise, must obtain a licence authorising them to buy and possess arsenic for such purposes, and must be prepared to satisfy the licensing authorities that they are fit and proper persons to be entrusted with the possession of arsenic, and that they are in a position to make suitable provisions for its safe custody both during use and at other times.

"That in rural districts, and, where necessary, in towns, the practitioners of indigenous medicine, if of good character, may be licensed to buy and possess a limited quantity of arsenic only in each year and to dispense the same to patients.

"That pounded white arsenic, except in special cases hereafter to be determined, be sold mixed with soot or indigo in the proportion of one ounce to each pound of arsenic.

"*Amendment of those Sections of the Bengal Municipal Act and Calcutta Municipal Consolidation Act which relate to the Sale of Drugs.*

"That the drugs named in the following lists, to be known as Schedule A, European Poisons, and Schedule B, Indian Poisons, be considered as poisons for the purposes of the Act:—

SCHEDULE A.

European Poisons.

1. Arsenic and its preparations.
2. Mercury and its preparations.
3. Antimonial preparations.
4. Strong ammonia.
5. Strong acids, such as concentrated nitric, sulphuric, hydrochloric, and oxalic.
6. Phosphorus.
7. Hydrocyanic acid and cyanides.
8. Opium, its alkaloids and preparations.
9. Belladonna, datura, hyoscyamus, their alkaloids and preparations.
10. Nux vomica, its alkaloids and preparations.
11. Aconite, its alkaloids and preparations.
12. Hydrate of chloral.
13. Chloroform.
14. Carbolic acid.
15. Cantharides and its preparations.

SCHEDULE B.

Indian Poisons.

1. White arsenic (Senko, Semulkhar).
2. Red arsenic or realgar (Monchhal).
3. Yellow arsenic or orpiment (Harital).
4. Corrosive sublimate (Raskarpura).
5. Aconite (Mitabish).
6. Datura.
7. Hyoscyamus (Khorasani Ajwan).
8. Nux vomica bark or seed (Kuchila).
9. Plumbago rosea (Lalchitra).
10. Croton seeds (Jaipál).
11. Yellow oleander (Kolika).
12. Cocculus indicus (Kakmari).
13. Nerium odorum (Karubi).

"That in the same manner as suggested for the sale of arsenic licences be granted for the sale and possession of poisons.

"That except under certain conditions and in certain quantities, to be specified in each case, no poison within the meaning of the Act shall be bought or sold without a licence, except on the prescription of a licensed medical man.

"That persons engaged in the merchandise of poisons as defined by the Act must obtain a licence authorising them to carry on such business, and must undertake to conform with the provisions of the Act and not to sell poison in any quantity larger than that permitted for its retail sale other than to duly licensed individuals, except on medical prescription.

"That every sale of poisons except on medical prescription, with certain exceptions relative to the practice of indigenous medicine, must be duly registered in the following manner:—(*a*) Name of purchaser; (*b*) residence of purchaser; (*c*) object of purchase; (*d*) authority for sale; (*e*) quantity sold; (*f*) date of sale; (*g*) signature of the seller; (*h*) signature of the purchaser.

"That no person shall be permitted to buy and possess poisons who is unacquainted with their nature, and is not in a position to make proper arrangements for their safe custody and sale.

"That in the shops of individuals licensed to sell poison, the poisons are to be properly labeled with the name of the poison and the printed word 'Poison' both in English and vernacular, and kept apart from other articles of merchandise.

"That in rural districts and, where necessary, in towns, practitioners of indigenous medicine, if of good character, may be licensed to buy and possess and dispense to their patients limited quantities of the poisons included in Schedule B.

"That all practitioners of medicine licensed to prescribe or dispense poison be registered.

"That the same regulations should apply to persons requiring poisons for manufacturing and other purposes not being those of sale, as were recommended in the case of arsenic.

"That it may be advisable to permit a limited retail sale of certain of the poisons included in the schedules for domestic and other purposes, and that the drugs which may be sold, the quantities to be sold, and the manner of the sale be hereafter determined.

"That all patent and proprietary medicines, if found to contain poison within the meaning of the Act, come within the operation of its provisions."

Amendment of those Clauses of the Board's Excise Opium Form No. 1 which relate to the Sale of Opium.

The authors then went on to consider the question of the retail sale of opium. The present largest quantity of opium that may be purchased on any one occasion by any single private individual is 2 oz. They propose to limit this quantity to grs. xx. (20), and this limit would quite satisfy the average opium-eater.

"At the present time opium-eating is not to be regarded as a vice in any sense of the term, but only as a habit, the excessive gratification of which engenders very serious dangers to the community at large if it requires that large and fatal doses of opium must be sold without restriction. It is not too much to require of the opium-eater whose daily dose has exceeded the retail limit that he should provide himself with a certificate to that effect, signed by a medical man or a respectable individual such as the headman of his village. We would suggest that such certificates should state the daily dose required and should be valid for one year only, and that the opium vendor on the presentation of a certificate of this kind should be authorised to sell the quantity intimated therein, provided it does not exceed five tolahs. The proposed amendment of the Board's Excise Opium Form No. 1 is accordingly as follows:—

"That he do not, except to a vendor of opium or of an intoxicating drug licensed by the collector or to a licensed druggist, sell more than one-eighth tolah of opium to any person at one time except on the production of a certificate stating that the purchaser is an opium-eater, signed by a licensed practitioner of medicine or a respectable resident of the locality, when the quantity specified in the certificate, provided it does not exceed five tolahs in weight, may be sold.

"All sales exceeding one-eighth tolah to be entered in a special printed record, giving in addition to the information required in Paragraph XIV. of Form No. 1, the name and residence of the purchaser, the authority for the sale, and the quantity sold.

[They then proceeded to consider the difficulties attending the working of this measure, and continued:]

"Without attempting to raise the question whether the policy of temporising with an admitted evil is correct we would at once ask, What are the poisons which may be expected to take the place of arsenic, aconite, opium, and other controllable poisons if these are rendered more or less inaccessible? If any such exist, they must naturally be sought among the indigenous drugs of the country which belong for the most part to the vegetable kingdom. That the country has many vegetable products endowed with poisonous properties is easily learned by reference to the Pharmacographia Indica written by Dymock, Hooper, and Warden. Fortunately, however, the knowledge of the poisonous properties of the majority of these substances is not yet by any means popular. They may in consequence be considered rather as potential rather than actual poisons at the present time, so far as the people generally are concerned. As judged from general information and from all the cases of poisoning which are reported, the number of indigenous vegetable poisons commonly known is very small. The following are the chief: opium, datura, aconite, nux vomica, oleander, and abrus precatorius. Opium heads the list, and is responsible for more fatal cases of poisoning than any other drug; but, as already shown, its accessibility can be controlled without imposing hardship on those who require it for a legitimate purpose. Successful interference with the possession of datura is apparently hopeless. Fortunately, the uncertainty of its action is tolerably well recognised. It is in consequence ill suited to the murderer's purpose, as great risk of detection would be incurred should the poisoned man recover. The murderer does not of necessity desire to leave the locality of the murder; the robber, on the other hand, administers datura to assist him in the act of theft and to cover his flight with the booty. Datura poisoning is chiefly non-fatal. Aconite, like arsenic, is an imported poison, and though its introduction

into the country cannot be so easily controlled as that of arsenic, yet as the channels of introduction are well-known, a feasible plan to prevent the widespread dissemination of the drug shall be practicable. The physiological symptoms set up by the chewing of even a small fragment of aconite root are a bar to its frequent use as a poison, and have frequently assisted in the discovery of the poisoner. Nux vomica trees can hardly be said to grow wild in this part of India in the same way as datura. They are to be found here and there and have generally been planted for some purpose. Nux vomica seeds can, however, be readily purchased in the bazaar. One seed is sufficient to poison an individual, and one tree may produce many hundreds of seeds. As nux vomica trees are not numerous and do not grow wild, their cultivation, except in certain recognised places and by authorised individuals, should be prohibited. The cases of poisoning which arise from the use of oleander are for the most part accidental. The plant is to be found in most gardens and, like datura, it is a poison which cannot be removed from the reach of the poisoner. Its poisonous properties do not seem to be very widely known, and its action is somewhat uncertain. The method of using abrus precatorius has already been referred to. These, then, are the poisons which have been in use for half a century and more. The accessibility of three of them—viz., opium, aconite, and nux vomica—can effectually be controlled. Abrus precatorius is seldom used, and then only as a cattle poison. Datura and oleander remain, but their use (oleander for homicide or suicide) is rare now, for the reasons already given, and for those reasons is not likely to become more prevalent. It is, of course, very difficult, if not almost impossible, to foretell what altered conditions may bring about; but as for many years there has been practically no apparent attempt among poisoners to strike out a new line, it may reasonably be hoped that the introduction of a restricted poison sale would for several years enforce a sensible diminution in this class of crime. It is of some interest to note that so long ago as 1843 Dr. Mouat, then Chemical Examiner, considered that the use of vegetable poisons was on the increase, and wrote as follows: 'The great majority of cases of the administration of poison had hitherto been arsenic. Lately, however, the exhibition of vegetable poisons has been more resorted to from its being known to *hakims* and native druggists that while minute traces of any mineral poison can be unerringly detected, most vegetable substances defy analysis in the present state of chemical science. Some check ought to be put to the amount of murder committed in this way, unknown and unrecorded, by legislative enactment punishing all vendors of drugs in whose possession those substances are found.' Dr. Mouat's apprehensions have, however, proved groundless, for Dr. Warden, referring to this statement, was able to state in 1886: 'The above was written about forty years ago; the fear expressed that vegetable poisons might supplant arsenic has not been verified. Arsenic is still the homicidal and cattle poison of India.' It will naturally be advanced that from Dr. Mouat's time up to the present arsenic has remained easily accessible, and the necessity for discovering suitable vegetable poisons has not arisen. But even should the properties of indigenous vegetable poisons become generally known, these substances could never compete with arsenic in fitness for the poisoner's purpose. A comparison of the properties of arsenic and vegetable poisons as a class will at once indicate the advantages which attend the use of arsenic.

"Properties of arsenic and vegetable poisons generally:—

Arsenic.	*Vegetable Poisons.*
1. Tasteless.	1. Acrid, bitter, or unpleasant taste.
2. Certain in action.	2. Uncertain in action, due to the varying quantity of the active principles present in different specimens of the same plant.
3. The fatal dose is a small quantity.	3. To cause death larger quantities are necessary of the majority of crude vegetable drugs.
4. Simulates in a remarkable manner the symptoms due to natural disease.	4. Do not simulate the symptoms of disease to anything like a corresponding extent.

"The certainty of its action, its want of taste, and the smallness of its fatal dose (two to three grains) require no further comment. They alone would give to arsenic a place in the front rank of the poisoner's equipment in any country. But the similarity of its symptoms with those induced by disease gives it in India a special value which is well illustrated by the following case:—'On Oct. 28th, 1894, a man was admitted into the Mayo Hospital, Calcutta, suffering from symptoms of choleraic diarrhœa. He arrived alone and stated that he had come from Moorshedabad by steamer, having purchased and eaten food in the bazaar before leaving. He became ill on board the steamer. After admission his symptoms were attributed by one of the medical officers to arsenical poisoning, but by three others who also examined the patient from time to time he was considered to be suffering from choleraic diarrhœa. The man died on the fourth day after admission and a post-mortem examination was held. The condition found was one of general congestion of the alimentary canal with ulceration of the stomach and ecchymosis over the columnæ carneæ of the heart. Portions of the viscera were sent to the chemical examiner for analysis which revealed the presence of arsenic.' It is legitimate to expect that many similar cases occurring in the district are returned without challenge as cases of cholera, if such a diversity of opinion can arise in a hospital provided with an experienced and expert medical staff. We have reason to believe, as already stated, that acquaintance with the vegetable poisons of the country and knowledge of their properties are not by any means widely diffused even among the rural population. On the other hand, it is, of course, quite impossible to determine what the practical knowledge of *hakims* and native druggists may be as regards indigenous vegetable poisons. In 1843 Dr. Mouat suggested that the *hakims* and native druggists were beginning to put their knowledge to a criminal use. Whether this holds good at the present time, and to what extent, we are quite unable to say. In towns the practitioners of indigenous medicine are as a class a respectable body of men. No doubt here and there black sheep are found among the *hakims* who are not over scrupulous as to the methods in which they earn money. But should the scheme proposed be put in force the *hakim* will be dependent for a supply of drugs very important if not essential to him in his practice upon the evidence of good character and conduct which he can adduce. In future the *hakims* would possess a definite status. A recognised position and the discharge of responsible duties are often sufficient to deter criminal instincts from the abetment or commission of crime. Without implying that the detection of a vegetable poison is as certain as that of a mineral, it may yet be confidently stated that the chemical methods for detecting vegetable poisons have considerably improved since the time of Dr. Mouat's report already referred to. And though there is still room for further advance in this direction much has been done, and vegetable poisons can be detected by chemical analysis of viscera with a very considerable degree of certainty as compared with the results of fifty years ago. Should resort to indigenous vegetable poisons be stimulated by restrictive measures it is probable that chemical research into the nature of these poisons and the best methods of detecting them would also be stimulated. Much has already been done in this direction by Dymock, Hooper, and Warden. If the proposed measures be carefully reviewed it will be seen that special cognisance has been taken of customs and habits, and the measure so drafted that no undue interference with habits and customs can arise. In the measures to restrict the general sale of poisons a special clause is introduced to legalise a small retail sale to unlicensed persons, the provisions of the clause to be hereafter determined. The practitioner of indigenous medicine will not be interfered with in his practice, but will be recognised and registered, and will, so far as the general community are concerned, become a more important, a more responsible individual than heretofore. We are aware that the proposal to register the practitioners of the province has already been once made and that it was abandoned on account of the difficulties of the task. We are now, however, approaching the matter from a different standpoint. It is utterly impossible to conceive of any scheme for restricting the sale of poisons unless a register is kept of those persons to be entrusted with certain privileges with regard to poisons. A licensed or registered medical practitioner is the only individual in most countries who is allowed to prescribe, sell, or possess poisons without challenge and without having to keep a list of the quantity of poisons prescribed and sold by him in the discharge of his duties. The obligation to register his name and address is a very small matter indeed in return for such important privileges, nor need the act of registration be made unduly vexatious. All medical practitioners in the employment of Government are already registered by

the Imperial and provincial Governments, and there would be no necessity to trouble them in any way. In Calcutta all practitioners of medicine have to obtain a licence from the municipality permitting them to practise, and this would simplify the registration of medical practitioners in Calcutta very greatly. In small towns and rural districts registration must of necessity be a very gradual process. It would follow on the exhaustion of the stock of poison in the possession of the practitioner of indigenous medicine and the necessity of obtaining a licence before it could be replenished. A measure of this kind can only very gradually be brought into force among a population such as that of the province of Bengal. Numerous difficulties would no doubt be encountered in its introduction, and the full measure of benefit to be derived from its operation would only slowly be realised. But, on the other hand, without some such scheme of registration the restriction of the sale of poisons seems impracticable. The interference with trade will practically arise only from restricting the free sale of arsenic. The value of the average annual quantity of arsenic imported into the country at the port of Calcutta during the last ten years has been about £308 sterling, valuing the arsenic at £14 per ton. The value of the average annual number of animals poisoned by arsenic in the province of Bengal only during the same period may be calculated as about £180 sterling. A certain amount of annoyance must of necessity be experienced in certain trades and occupations on the introduction of a restricted sale. It is possible that certain individuals who are now in the habit of using arsenic in their trade may be unable to obtain it in the future. Such objections should not, however, be allowed to carry any force. The convenience of the few can hardly have weight when the interests of a population have to be considered. Those persons who are fit to be trusted with poison will be able to obtain it under conditions of restricted sale as readily as at the present time. They will, however, have opportunities of realising that they are responsible for the safe care of the poison which they are permitted to buy. The value of the arsenic imported into the country at the port of Calcutta does not indicate that any important industry would be injured by the proposed measures.

"We have now reviewed those objections to the introduction of measures restricting the free sale of poisons which appear to us to be the most important. For many years past the introduction of such measures has been frequently recommended. It is trusted that the sketch given in our paper of the present prevalence and nature of poisoning in the province of Bengal may serve to demonstrate that the necessity still exists. Without under-rating the difficulties attending the introduction and working of such a measure incidental to the special conditions prevailing in India, we are confident that its introduction would be attended by great reduction in crime. We do not pretend that the measures proposed by us are free from defect or incapable of improvement. The scheme, such as it is, is submitted for criticism. In conclusion, we have to thank Dr. Simpson, health officer of Calcutta; Surgeon-Major J. B. Gibbons, police surgeon, Calcutta; Dr. Sasibhusan Ghosh, assistant to the health officer, Calcutta; Babu Mohiny Mohan Chatterjee, attorney-at-law of the Calcutta High Court; and Babu Surendra Nath Mittra, B.A., registrar, Bengal Secretariat, for information and assistance in the preparation of the statistics contained in this paper."

SURGERY AND OPHTHALMOLOGY.

DEC. 27TH, 1894.

The following are abstracts of papers read in the Section of Surgery and Ophthalmology:—

Radical Cure of Inguinal Hernia at the Hospital of Pondicherry (French Colony).

Dr. HENRY GALLAY, Surgeon-Major of the Colonies, read a paper upon the Radical Cure of Inguinal Hernia at the Hospital of Pondicherry. He said:—

"In the two years that we have had charge of the medical service at Pondicherry we have performed in the hospital thirty-eight times the radical cure of hernia inguinalis. The number of the operated cases is only thirty-six because twice we have had to operate for hernia on both sides of the same man. Our operations have been made thirty-one times on the right side and seven times on the left. Twelve times our hernias have been found complicated and our surgical operation aggravated owing to the necessity of performing at the same *séance*—twice the amputation of a cancerous testicle, twice the radical cure of old hæmatoceles, and eight times the radical cure of old and voluminous hydroceles. Twice we were in the presence of adhesions of the intestine with the hernial sac; it was impossible to extirpate these adhesions, and we were obliged to reduce the intestine from the bag, from which it was impossible to separate it. Three times we noticed that the cæcum came down in the scrotum. Once the cæcum was accompanied by the upper part of the colon and by a lump of epiploic fringes abnormally swollen; the lump once pulled off weighed nearly 4 lb. Another time we saw the cæcum and the ileo-cæcal appendicula ruptured on the left side. On another occasion we found the hernial bag adhering to a doubled fatty tissue three inches thick. Thus it is seen that out of thirty-six operations eighteen were complicated, or 50 per cent. Notwithstanding the disadvantages of such a series we had but four fatal cases—that is, 11 per cent. One of the fatal cases which we had to record was caused by tetanus. The local hospital, where we operate, was formerly the hearth of tetanus. During the last years, although we have carried out upwards of 300 surgical operations, it was the first time that terrible infection occurred, and perhaps we would have as much right to accuse the flesh of our patient as the locality where we operate. The man was a farmer, living in contact with the soil; perhaps the assistant in charge of the antiseptic arrangements had not sufficiently disinfected the field of operation. On one occasion the hernial sac was doubled with a real sort of wen from which it was impossible to separate it; it was strangled by two pieces of catgut crossing each other and then reduced; the thickness of the fatty tissue was no doubt such that a small artery was insufficiently strangled. A small adhesion was formed on the right side of the iliac pit; the hernia was then on the left, fever set in, and the patient succumbed after presenting the symptoms of peritonitis. At the necropsy it was noticed that the neck of the bag, which was on the left side, had gone, after its reduction, to the right, and that around it a little hæmorrhage had taken place and had served as the starting point of the inflammation of the peritoneum. The third death was owing to the prolonged suppuration which occurred in an old debilitated patient on whom we operated on the same day for the radical cure of an inguinal hernia on the right side and an old hydrocele on the left side. There was no serious accident on the side of the hernia, only a few drops of liquid collecting under the suture. On the side of the hydrocele there was also a little running in the lower part of the scrotum, and when the surgical wound was cicatrised by first intention we were surprised to find at the inferior and posterior parts of the scrotum a large piece of flesh gangrened. The elimination of the slough caused a suppuration of long duration, from which the patient did not recover, succumbing on the seventeenth day after operation. The fourth and last death was that of an old man in whose scrotum we found, not only the cæcum, but the greater part of the large intestine, with 4 lb. of the epiploic fringes abnormally swollen. The reduction of that mass of large intestine, which had since long ceased to lie in the abdomen, was very painful. However, everything seemed to have taken place normally. In the evening, twelve hours after the operation, the patient was well. In the night the stomach swelled with extreme rapidity, and he succumbed with symptoms of asphyxia before we could be sent for. A post-mortem examination was not permitted. As we have finished relating our failures, we will now proceed with our successes. Twelve times we have obtained the ideal result—that is to say, reunion by first intention, ablation of the sutures on the eighth day, and complete cure on the nineteenth. As a precaution the patients were kept in bed until the thirtieth day, when they left the hospital. Twenty times cicatrisation was delayed, either because the sutures have cut the flesh, or because under the superficial sutures a little liquid has accumulated, which it was necessary to allow to fill up the cavity which was formed for that purpose. In two cases we found the cords of the testicles swollen with a profound suppuration. The patients kept in the hospital under small surgical complications stayed generally forty-five days; two stayed forty-eight days and only two left on the fifty-third day. Authors are willing to admit that relapses after operations for hernia occur before the sixth

month. We have met fourteen of our patients, who were operated upon on the following dates :—

Date.	Months after operation.	Date.	Months after operation.
Dec. 19th, 1892	21	Dec. 17th, 1893	9
Jan. 25th, 1893	13	,, 20th, 1893	9
Sept. 17th, 1893	12	Jan. 29th, 1894	8
Nov. 6th, 1893	10	Feb. 12th, 1894	7
,, 10th, 1893	10	,, 25rd, 1894	7
,, 24th, 1893	11	April 23rd, 1894	6
Dec. 8th, 1893	9	,, 26th, 1894	6

Among all the recovery has been perfectly well kept up. Among all the scar is soft, and the inguinal cord free from adhesion, and what makes the whole of these results interesting is that among the patients one happened to be an old weak-looking man sixty-one years of age, in whom the cure of a long-standing large-sized hernia has been completed by the excision of a cancerous testicle. Having regained his plumpness and alertness, this old man, formerly an invalid, now walks easily, two years after operation. The next were four sepoys, three of whom after one month's rest—the first thirteen months, the other two ten months since—resumed their military duties and bore all the hardship of them. There were three police peons who for ten, seven, and seven months respectively have been patrolling night and day, and on their legs from six to eight hours a day. One patient was operated upon on Dec. 20th. While he was a scholar he left the hospital to enlist himself as a sepoy, and for ten months has been well enough to perform the military gymnastics and other hard work, and bears without difficulty the painful period of the young soldier's instruction. Two are Europeans : one a medical man on board the steamer, has, six months since, resumed his duty on board and goes up and down the ladder, and supports the necessary muscular efforts to struggle against the rolling and pitching, and that without wearing a truss. The other one is a tramp ; he was operated on more than ten months ago for a hernia about the size of an adult's head. He recommenced his old roving existence, living on the roads, wandering barefooted from Cuddalore to Pondicherry, even extending his begging trips to Trichinopoly, without being tired or threatened with relapse. In all cases I made use of Bassini's process, which, as everyone knows, consists in the reconstitution, by means of two whips with catgut, of the two partitions of the inguinal channel in their full length, while the deep orifice of the channel retains just the width sufficient for the inguinal cord to pass through. The therapeutic results I have just related allow me to conclude as to the excellency of this method ; it gives to the reconstituted abdominal partition a perfect stability, allows the inguinal channel to be free to let the cord to pass through, and by shutting the deep opening of this channel prevents all opportunity for a relapse. The busy and tiring existence which since the operation has been led by the two European patients, four sepoys, three police peons, and the young recruit confirms the conclusions which Bassini himself, when publishing his surgical method, formulated—viz., that as soon as an inguinal hernia has been successfully operated on, when the reconstitution of the partitions of the channel has been methodically made, the patient can be considered as completely cured, go through the most arduous professions, and no longer bear any bodily defect on account of which he could be rejected from the military profession or exempted from the military service."

Contagious Pemphigus.

Assistant-Surgeon SOORJEE NARAIN SINGH, Teacher of Materia Medica and Therapeutics, Temple Medical School, Bankipur, read a paper on Contagious Pemphigus. He said :

"Pemphigus is described in text-books as a non-contagious skin disease. I have, however, seen cases which occurred one after another in rapid succession in the same family, as also by communication in neighbouring families. In August, 1893 while in consultation with Surgeon-Lieutenant-Colonel E. Bovill in a case of clubfoot in a new-born child, I noticed pemphigus on the body of that child. Surgeon-Lieutenant-Colonel Bovill suggested to me the keeping of a record of such cases as could be found to have occurred in the same family. Since that time I have had opportunities of seeing cases of pemphigus in three families in which it affected several children in quick succession. In Family 1 there were seven cases, all occurring within a period of from Aug. 5th to 20th, 1893, and in children aged from fourteen days to six years. In these cases the bullæ varied in size from a large pea to a hen's egg, containing a clear fluid which gradually became opalescent. Some of them burst in a day or two, sometimes earlier. In those that burst the cuticle would curl up in places, exposing the red, raw surface underneath and forming a slightly yellowish crust. In those that did not burst the cuticular wall shrivelled up, forming a thin white crust, which in a short time withered away. The mark left on the body would be a faint pink white in colour for a few days, but afterwards there would be no trace whatever on the skin. There would be no pit or cicatrisation. In the cases I examined I found that no sooner was one set of bullæ on the decline than another set would crop up, and so forth, for a week or two, sometimes extending to three weeks. The bullæ were all separate and none of them coalesced. The eruption at first appeared as small red spots, which rapidly formed into blebs. The bullæ were generally found on the hands, legs, and back. There was little or no fever, only a slight constitutional disturbance being present, such as loss of appetite, slight emaciation, and general uneasiness, probably from the pricking and smarting pain of the bullæ. In Family 2 there were three cases of pemphigus, also occurring in children aged from eleven months to seven years, and within a period extending from Sept. 10th to 26th, 1894. All these cases were of a similar nature to those in the foregoing family. In Family 3 there were two cases occurring on Oct. 19th and 29th, 1894, and in children aged two years and two months respectively. It is a remarkable fact noticed even by the lay members of the house that one of the three children of Family 2, the one aged eleven months, had been brought by her mother to the house, and a few days after the child aged two years of Family 3 (who in all appearance was a very healthy girl) was affected. This case was exactly similar in nature to those described in Families 1 and 2. The second case of this third family was, however, of a very grave nature and terminated fatally. The little infant, aged two months, had only been under homœopathic treatment for diarrhœa. When I was called to see it I found a big bladder filled with clear serum on the upper part of the abdomen, extending from the splenic to the hepatic region, and breadthwise from the epigastric to within an inch above the umbilicus. There were big bullæ also on the groins, the chin, back, arm, legs, and ankles all rapidly distending themselves and bursting, the surrounding skin remaining perfectly healthy. The child was in great agony, constantly crying ; the fever was high—viz., 103° F. Some of the bullæ had burst, exposing the red corium. The discharge from the bullæ was of a fetid smell. In short, the child looked, as it were, scalded all over. It had been in a bad state of health from birth, suffering repeatedly from indigestion and diarrhœa. On the whole, if I am to analyse all the cases I saw during the last two years I am inclined to think that pemphigus, at least in the certain forms I have had opportunities of examining it, is of a contagious nature. In family No. 1 and in family No. 3 the disease could be traced to have occurred by communication with persons suffering from the same disease in the neighbourhood, whilst in the same family it spread amongst the children very rapidly. I cannot say that the disease could be in all these cases the result of a certain condition of the system, such as are occasioned from bad health or insanitary living. The cases I examined were, although not models of health, yet except one quite as healthy as native children ordinarily are, and living in houses and localities not particularly insanitary. While I was examining my cases I had my eye open regarding any mistake as to diagnosis. I was sure my cases could not be mistaken for a varicella. Even the smallest bullæ were larger than any varicella vesicle, and the large bullæ or the bladders in my cases have no comparison in varicella. The succession of crops of bullæ in the cases I examined continued to two or three weeks, whereas in varicella there is generally no fresh crop after a week. In varicella there is always left in the skin for a considerably long time a whitish blue stain, which may also be pitted or cicatrised. In my cases, after the cuticular wall crumbled, there was no pitting, and the pink white skin left, lasting only for a few days, would leave no mark whatever. In varicella, again, there is often an ulceration before cure. In my cases there was no ulceration, except in one pemphigus gangrenosus. My cases could not also be mistaken for varicella bullosa, because they had rapidly enlarged and fully distended before bursting ; whereas in varicella bullosa the vesicles do not generally enlarge until they have burst, and they generally enlarge at the periphery of the crust. There was no case of chicken-pox in the neighbourhood at the time I saw the cases

of pemphigus. I find the question whether pemphigus is or is not contagious has of late attracted the notice of some medical men in Europe; and, in conclusion, I beg to apologise for making any assertion contrary to the teachings of the text-books, but I leave my experiences to the Congress with a view that the question may be investigated."

Medical News.

UNIVERSITY OF LONDON.—The following candidates passed the Preliminary Scientific (M.B.) Examination in January, 1895:—

ENTIRE EXAMINATION.

FIRST DIVISION.

Keays, Lionel Francis, St. Paul's School and private tuition.
Kelly, Charles Ernest M., Owens College.
Manson, Patrick Thurburn, University Tutorial College.
Oswald, Felix A. Clair, B.A., private study.
Petch, Tom, B.A., private tuition.
Shopland, Thomas, B.A., University Tutorial College and private study.
Vernon, Ethel Miller, University Tutorial College.

SECOND DIVISION.

Coffin, Arthur Charles, B.A., private study.
Davies, David Leighton, private study and University Tutorial and University Colleges.
Easton, Harold Augustus, private study and University Tutorial College.
Ehrlich, Henry Albert, Owens College and private study.
Hoban, Thomas, private study and St. Thomas's Hospital.
Jarvis, George Charles, B.A., private study.
Jones, Wm. Henry Pryce, B.A., private study and University College, Liverpool.
Kevern, Samuel, B.A., Plymouth Technical School.
Raven, Eustace, St. Thomas's Hospital.
Rockwood, David Pratt, University College and Gower-street Laboratory.
Smith, John Salmon, University College.
Spilsbury, Bernard Henry, Owens and University Tutorial Colleges.
Trumper, William Arthur, St. Mary's Hospital.
Woodcock, Louisa, University Tutorial College.

CHEMISTRY AND EXPERIMENTAL PHYSICS.

*Aldred, John White, Owens College.
Armitage, John James, School of Science, Cheltenham.
*Beaumont, Noel Charles, St. Bartholomew's Hospital.
*Beetsley, Vernon Cyril, St. Mary's Hospital.
*Bernard, C. Constance, private tuition.
Billinghurst, Walter Beinsmead, Merchant Taylors' School.
Blythe, Thomas Thompson, University Tutorial College.
Boissière, Felix Anthony, King's College.
*Brown, Charles Richard, St. Bartholomew's Hospital.
*Burn, William Leopold, private study.
*Capper, Harold Selwyn, private study, and University Tutorial College.
*Dawson, William Collings, King Edward High School, Birmingham, and Mason College.
*Drake-Brockman, Henry George, University Tutorial College.
Ede, Alfred Gordon, Durham College of Science and St. Bartholomew's Hospital.
*Etheridge, Charles Edward, University Institute.
*Flint, William Henry, Mason College.
*Foster, Henry Bertram, private study.
*Goodman, Harold, St. Bartholomew's Hospital and private tuition.
*Gowlland, Edward Lake, University Tutorial College.
*Green, Sydney Balch, St. Bartholomew's Hospital.
*Harrison, John Wilkins, St. Paul's School and University Tutorial College.
*Hickinbotham, Edward B., King Edward High School, Birmingham, and private study.
*Hildesheim, Oscar, St. Paul's School.
*Hilton, Charles Guy Salter, private tuition.
Hunt, Sydney, Merchant Taylors' School.
*Judson, Joseph Edward, Owens College and private study.
Leah, Thomas, St. Mary's Hospital.
Marshall, Charles de Zouche, Eastbourne College.
Morgan, Daniel Leigh, Guy's Hospital.
*Morris, Frank Mayo, London Hospital.
*Moss, Bertram Wilmore, Guy's Hospital.
Orford, Thomas Christian, Owens College.
*Panckridge, William Panckridge, University and University Tutorial Colleges.
Payne, William, Carlyon College.
*Peck, William Edward, University Tutorial College and private study.
*Robson, Isabel, University College, Aberystwith, and private study.
Stallard, Nigel Frampton, University Tutorial College.
*Stark, Arthur Campbell, private study.
*Stevens, Andrew Norris, University Tutorial College.
Taylor, William Benjamin Batchelor, Merchant Taylors' School and London Hospital.
*Wells, Albert John Walton, St. Bartholomew's Hospital.
Whale, George Harold Lawson, private tuition.
*Williams, Sydney Rice, Merchant Venturers' Technical College, Bristol.
*Wirgman, Charles Wynn, University College and private tuition.
*Wynne-Edwards, Edith Anna, University Tutorial College and private study.

BIOLOGY.

Addison, Oswald Lacy, University College.
Bourke, Isidore McWilliam, St. George's Hospital and private tuition.
*Brailey, William Herbert, Queen's College, Cambridge.
Bridger, James Frederick Edmund, St. Mary's Hospital and private study.
*Chetwood, Thomas, Epsom College.
Eisenberg, Herman Bernard, University College, Bristol.
*Foster, Arthur Herbert, Epsom College and St. Mary's Hospital.
Holland, Laurence, Mason College and private tuition.
*Jones, Lawrence, St. Paul's School.
*Judson, James Douglas, Owens College.
Klein, Joseph, University Tutorial College.
Löwe, Otto William Axel, private tuition and University College, Liverpool.
Mennell, Zebulon, University Tutorial College and private tuition.
*Miller, Ernest Alfred, Guy's Hospital.
Miller, Thomas Davidson, University and University Tutorial Colleges and private tuition.
*Murrell, Christine Mary, University College.
*Noall, William Paynter, Owens College and private study.
*Nutt, Harold Rothery, St. Mary's Hospital.
*Ormond, Sidney James, Guy's Hospital.
*Paramore, Richard Horace, University Tutorial College.
Pearce, John Warwick Guy, The Leys School and private tuition.
*Pick, Lawrence, University Tutorial College.
Pocock, Arthur Robt. George, University College and private tuition.
*Ransford, Alan Carpmael, Dulwich College and Guy's Hospital.
*Robinson, Henry, St. Paul's School.
*Scrase, James John Sheat, St. Bartholomew's Hospital.
Serjeant, Edith, Somerville Hall, Oxford.
*Stedman, Percy Taylor H., private study and tuition.
Stevens, Stanley, Carlyon College.
*Swift, Eric Wilson Danby, Firth College.
*Turnbull, Robert Cyril, Yorkshire College and London Hospital.
*Van Praagh, Harold John, St. Mary's Hospital.
Wallbridge, Stephen Edwin Joseph, St. Mary's Hospital.
*Watson, William Bertram, St. Mary's Hospital.
Wolstenholme, Henry, University College and private tuition.

* These candidates have now completed the examination.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Weintrand of Strasburg has been recognised as *privat-docent* in Medicine.—*Kazan:* Dr. Fortunatoff has been promoted to the position of Ordinary Professor of Anatomy.—*Marburg:* Dr. von Büngner has been promoted to an Extraordinary Professorship of Surgery.—*Prague: Bohemian University:* Dr. V. Janovsky has been promoted to the position of Ordinary Professor of Dermatology and Syphilis. *German University:* Dr. Paul Dittrich has been promoted to the position of Ordinary Professor of Forensic Medicine.—*Tübingen:* Dr. Nagel has been recognised as *privat-docent* in Physiology.

PRESENTATION.—Dr. A. J. Helm Montague of Worksop has been presented with a case containing a pair of handsome electro-plated fish servers bearing the following inscription: "Presented to Dr. Montague by the St. John Ambulance class, Worksop, in recognition of his services as lecturer. February, 1895." At the same time Mrs. Montague received an electro-plated pickle fork from the same class.

THE Cambridge Medical Graduates' Club gave an informal smoking concert on Tuesday, Feb. 18th, at the St. James's Banqueting Hall, Regent-street, W. Each member of the club had the opportunity of introducing two friends, and the corresponding club, the Oxford Graduates' Medical Club, were invited as guests. There was no rigid programme, but most excellent music was kindly provided at intervals by Drs. Habershon, Shadwell, McCann, Fyffe, and Hayne, and Messrs. Burns, Gale and Marshall.

LITERARY INTELLIGENCE.—Messrs. J. & A. Churchill will publish next week a work entitled "The Insane and the Law; being a Plain Guide to Medical Men, Solicitors, and others," by Mr. G. Pitt-Lewis, Q.C., Recorder of Poole, Dr. Percy Smith, Medical Superintendent of Bethlem Hospital, and Mr. J. A. Hawke, B.A., late Scholar of St. John's College, Oxford. The same publishers have also nearly ready the second volume of "Chemical Technology," edited by Mr. C. E. Groves, F.R.S., and Mr. W. Thorp, B.Sc. This volume is devoted to Lighting by Candles and Oil, and is illustrated with nearly 350 figures. The section on Fats and Oils is contributed by Mr. W. Y. Dent; Stearine, by Mr. John McArthur; Candle Manufacture, by Messrs. L. and M. A. Field; the Petroleum Industry, by Mr. Boverton Redwood; Lamps, by Mr. Redwood; and Miners' Safety Lamps, by Messrs. Redwood and D. A. Louis. The third volume of the same work, containing Gas Lighting, written by Mr. Charles Hunt of Birmingham; and Electric Lighting, by Professor Garnett, chairman of the Board of Technical Education, London County Council, is in an advanced state.

FOOTBALL CASUALTY.—During a match at Bolton a player aged twenty-three years sustained "injuries to one of his legs." He was placed under medical treatment, but the injuries became more acute, and he died on the 15th inst.

ROYAL BRITISH NURSES' ASSOCIATION.—The third sessional lecture of the season was delivered at 17, Old Cavendish-street on Feb. 15th, before an appreciative audience, by Mr. W. Bezly Thorne, M.D., the subject being an Illustrated Explanation with Demonstration of the Physical Treatment of Heart Diseases. The chair was taken by Mr. J. Langton, F.R.C.S. At the conclusion the lecturer replied to the many intelligent questions raised on the various points of special interest to nurses.

A NEW WING of Weymouth Sanatorium was opened on Feb. 7th by Lady Ilchester, in presence of a large company. The Mayor, who presided, said that the sanatorium was founded in 1848 by the late Dr. Smith for the treatment of diseases of women and children. Originally there were six beds, but the applicants became so numerous that the committee acquired additional land and erected a detached wing containing three wards with accommodation for twelve patients.

THE OPIUM COMMISSION.—The report of this commission will be in the hands of Members of Parliament before Easter. The work of the commission has no doubt been unusually laborious and difficult, the evidence taken being very voluminous. The subject is one that gravely affects the habits and customs of the population of India for one thing, and the public finances of that country for another, consequently the publication of the results arrived at by the commission is anxiously awaited.

WE learn from Bordeaux that a congress for the month of August next is being arranged for in that city under the auspices of the Société de Gynécologie d'Obstétrique et de Pédiatrie. The congress will be held upon the occasion of the thirteenth exhibition which the Philomathic Society of Bordeaux has organised. Professor Carnier will be the president of the whole congress, and the sectional presidents will be as follows: in Gynæcology, Professor le Dentu; in Obstetrics, Professor Carnier; and in Pædiatrics, Professor Lannelongue of Paris. The general secretary to the committee of organisation, to whom we owe the above information, is Professor Lefour.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 6th, Dr. Tew, President, being in the chair. Dr. Bell Taylor showed a man eighty years of age on whom he had successfully performed the operation of Cataract Extraction on the Left Eye without Iridectomy. He also showed: (1) three cases of Double Extraction; (2) a boy aged fifteen with Detachment of Retina, under treatment by galvanism; (3) a man aged forty-five who had been Blind for several months from disease of the Nerve, and whose sight had been restored by galvanism; and (4) a man aged forty-seven in whom Symblepharon of the Left Eye had been treated by a graft of skin transplanted from the right upper eyelid. Dr. Carroll showed a man aged forty-five who had been much benefited for Psoriasis by thyroid tabloids, four daily for nine months. Dr. William Ransom showed a woman aged thirty-four suffering from Acromegaly, associated with Glycosuria and Bi-temporal Hemianopia. Dr. Handford showed a man aged thirty-two with Splenic Leucocythæmia, who after the unsuccessful use of marrow tabloids and extract had improved greatly under arsenic. Mr. Anderson related three cases of Ligature of the Common Carotid Artery. In the first case the operation was done for aneurysm in the neck. Pulsation having returned, the sac was dissected out, and this was followed by death shortly afterwards. In the other two cases the carotid was ligatured in the course of the removal of malignant growths, and both cases recovered. Mr. Chicken showed the Vermiform Appendix removed post mortem from a male patient who had died from syncope occurring in the course of an acute abdominal illness. Two members of the same family had suffered from illness, in one case fatal, supposed to be due to disease of the same region. Specimens were exhibited: by Dr. Wm. Ransom, Actinomyces; by Dr. Handford, Leucocythæmic Blood; and by Mr. Anderson, Aneurysm of Common Carotid, and part of Prostate and Calculus removed by cystotomy.

THE annual meeting of the East Grinstead Cottage Hospital was held on Feb. 12th at the Victoria Hall, East Grinstead, Mr. J. McAndrew presiding. During the year 1894 there were 43 patients under treatment; these included 28 surgical cases, of which 11 were of a serious nature. No death occurred during the year. The financial statement given in the committee's sixth annual report was satisfactory. A bequest of £45 was received from the executors of Mrs. Hort.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Public Infirmary for Waterford.

MR. JOHN REDMOND has introduced a Bill into the House of Commons for the establishment of a public infirmary in the city of Waterford. The Bill has been put down for second reading on Monday, March 4th.

Sanitary Registration Bill.

A Bill for the sanitary registration of dwelling-houses, schools, colleges, hospitals, asylums, workhouses, factories, workshops, hotels, lodging-houses, and other buildings within the United Kingdom has been introduced into the House of Lords by the Marquis of Ailesbury.

Burials Bill.

The Bill to amend the burial laws, introduced into the House of Commons by Mr. Carvell Williams, consists of nineteen clauses and a schedule. In the words of the memorandum, the main object of the measure is "to provide that while the consecration of parochial cemeteries may be permitted, consecration shall be regarded only as a religious rite, and shall create no legal rights or disabilities or claims to fees. The effect will be to give to burial authorities greater freedom than they now possess in regard to the laying out of cemeteries, the erection of mortuary chapels, &c." Clause 2 provides that where, after the commencement of the Act, any ground is appropriated as a public burial ground for a parish or district, the burial authority having jurisdiction over such burial ground shall sufficiently enclose and protect the same, but shall not permit any division to be made or other means to be taken of marking the boundaries of or distinguishing the consecrated and unconsecrated parts of such ground.

Certifying Surgeons under the Factory Acts.

The Departmental Committee of the Home Office on Factory Statistics have issued a long report in which they deal at considerable length with the examination by certifying surgeons of children and young persons. The committee find that in a certain number of instances annually the certifying surgeons fail to make any report and inasmuch as no remuneration is allowed for this part of their duty it is extremely difficult to secure compliance with the statutory obligation. In districts where young persons and children are rarely employed the return will necessarily be small, but the statistics cannot be regarded as complete unless a return, however limited the numbers concerned, be obtained from every certifying surgeon. To secure this end the committee say the question of remuneration ought to be considered. As to the medical reasons for rejection, these stated broadly, say the committee, are that the child is incompetent for the work in question or that owing to impaired health he would be likely to suffer ill consequences from the employment, or that his condition is such as to call for exclusion in the interest of his fellow workers. Some of the disqualifications which come under the first and second of these heads are relative only; that is to say, unfitness for one particular kind of work does not of necessity mean unfitness for all factory employment. Nor is it so regarded by certifying surgeons. It seems that in Lancashire deafness is held to be a ground of rejection, chiefly as regards employment in rooms where machinery is at work; but many children with imperfect hearing are passed on condition that they are employed in safe parts of the factory. Similarly the experience of some certifying surgeons has led them to regard carious teeth as a reason for rejection in lucifer match works. While regarding it as impracticable to institute any standard in such matters applicable to all industries in different parts of the country, the committee recommend that as a means to greater precision and uniformity, and also to more correct classification for the purpose of the annual report, a memorandum should be prepared with the assistance of some of the most experienced of the certifying surgeons embodying suggestions and instructions for the guidance of certifying surgeons generally.

BOOKS ETC. RECEIVED.

ALCAN, FÉLIX, Boulevard Saint-Germain, Paris.

Manuel de Percussion et d'Auscultation. Par le Dr. Paul Simon. 1895. pp. 256.

Petit Compendium Médical. Par le Docteur A. Bossu. Troisième édition. 1895. pp. 152.

BAILLIÈRE, TINDALL, & COX, King William-street, Strand, London.

A Practical Treatise on Diphtheria and its Successful Treatment. By Brownlow R. Martin, M.B.Dubl. Second Edition. 1895. pp. 64. price 6s.

BLACKIE AND SON, Old Bailey, London, E.C.

Blackie's Science Text-book: an Elementary Text-book of Anatomy. By Henry E. Clark, F.P.G.S. Glasg. M.R.C.S. 1895. pp. 283. Price 5s.

The Student's English Dictionary. By John Ogilvie, LL.D. New Edition. Edited by Chas. Annandale, M.A., LL.D. With extensive Appendices. Illustrated. 1895. pp. 864. Price 7s. 6d.

BLAKISTON, P., SON, & Co., Walnut-street, Philadelphia.

Materia Medica and Therapeutics. By John B. Biddle, M.D. Thirteenth Edition. By Clement Biddle, M.D. Illustrated. 1895. pp. 714.

CASSELL AND Co., London.

The Year-book of Treatment for 1895. pp. 490. Price 7s. 6d.

CHURCHILL, J. & A., New Burlington-street, London.

Diseases of the Eye. By C. Edwd. Shaw, M.A., M.D. Illustrated 1895. pp. 103. Price 3s. 6d.

CLAY, WM. F., Teviot-place, Edinburgh.

On the Geographical Distribution of Tropical Diseases in Africa, with an Appendix. By R. W. Felkin, M.D., F.R.S.E., F.R.G.S. With Table and Map. 1895. pp. 79. Price 3s. 6d. net.

DORMAN, W. J., Philadelphia.

Transactions of the American Gynæcological Society. Vol. xix. 1894.

Transactions of the American Surgical Association. Vol. xii.

EYRE AND SPOTTISWOODE, East Harding-street, Fleet-street, London.

Army Medical Department Report for the Year 1893, with Appendix. Vol. xxxv. 1895. Price 2s. 5d.

FROWDE, HENRY, Amen-corner, London, E.C.

The Hospital Service Book and Supplement. By Chas. P. Baxter, M.A. 1895. Price 2s.

KELLY AND Co., High Holborn, London.

Kelly's London Medical Directory. 1895. Price 6s. 6d.

LONGMANS AND Co., Paternoster-row, London, E.C.

The Foundations of Belief: being Notes Introductory to the Study of Theology. By the Right Hon. Arthur J. Balfour. pp. 356. 1895. Price 12. 6d.

PENTLAND, YOUNG J., Edinburgh.

Atlas of the Diseases of the Skin. By H. Radcliffe Crocker, M.D., F.R.C.P. Fasciculus 8. Price 21s. net.

SAMPSON LOW, MARSTON, & Co., Fetter-lane, Fleet-street, London.

Phrenology, or Heads and What they Tell Us. By W. Pugin Thornton. Illustrated. Fourth Edition. 1894. pp. 115. Price 1s.

SAUNDERS, W. B., Walnut-street, Philadelphia.

Saunders' New Aid Series, Dose-book and Manual of Prescription-writing. By E. Q. Thornton, M.D., Ph.G. 1895. pp. 334.

THE MEDICO-LEGAL JOURNAL OFFICE, Broadway, New York.

Medico-Legal Studies. Vol. iii. By Clark Bell, Esq. 1893.

THE NEW SYDENHAM SOCIETY, London, and H. K. LEWIS, Gower-street, London.

An Atlas of Illustrations of Pathology. Compiled (chiefly from original sources) for the New Sydenham Societies. Fasciculus 9, Diseases of the Testis. Part I., plates 42 to 46. 1894.

The Medical Magazine; February, 1895 (H. Sotheran and Co., 140, Strand, London).—Pocket Therapeutic Notes; second edition; 1894 (Ferris and Co., Bristol). The Album: a Journal of Photographs of Men, Women, and Events of the Day (the "Illustrated London News" Office, 198, Strand, W.C.); price 6d.—Sell's Dictionary of the World's Press and Advertisers' Reference Book, 1895; by Henry Sell (Sell's Advertising Agency, Fleet-street, London).—Fifty Years of the Glass Bottle Trade; reprint from "The British Trade Journal," December, 1894; Messrs. Kilner Brothers' Jubilee, 1844-1894.—Jahrbuch fur Kinderheilkunde und Physische Erziehung; Band xxxix.; Hefte 2, u. 3; February, 1895 (B. G. Teubner, Leipzig).—Transactions of the Cremation Society of England, No. 8 (The Cremation Society of England, New Cavendish-street, W.); 1895; price 6d.—Festschrift zum funf-und-zwanzigjahrigen Jubilaum des Vereins Deutscher Aerzte zu San Francisco, Californien, 1869-1894 (Schmidt Label and Litho Company, San Francisco, Cal.).—Sonderabdruck aus der Allgemeinen Medicinischen Central-Zeitung; von Oscar Coblentz, in Berlin.—Sonderabdruck aus der Pharmaceutischen Centralhalle; von Dr. H. Hager und Dr. E. Geissler (Pharmaceutische Centralhalle, Dresden).—Die Nichtpathologische Gynäkologie der alten Aegypter; Felix Oefele; Bad Neuenahr (Emil B. Nache, Berlin, S.W.).—The Natural History of Plants; Part 10 (Blackie and Son, London); price 2s. 6d. net.—The New Science Review; January, 1895 (Gay and Bird, Chandos-street, Strand, London).—Przeglad Chirurgiczny; tom. ii., zeszyt 2. (K. Kowalewskiego, Warszawa, 1894).—Das Fieber; von Dr. G. B. Ughetti (G. Fischer, Jena, 1895).—Rudolph Virchow und die Bakteriologie; von E. Braatz (G. Fischer, Jena, 1895).—Preventive Surgery; by George Wherry, M.C. Cantab., F.R.C.S. (Deighton, Bell and Co., Cambridge, 1895); price 6d.—Posological Tables: Appendix on Poisons, Index of Diseases; by Wm. Craig, M.D. Edin.; new edition, 1895 (E. and S. Livingstone, Edinburgh); price 1s. net.—The Dental Digest; January, 1895 (The Dental Protective Supply Company, Chicago, Illinois).—Bulletin of the Psychological Section of the Medico-Legal Society; by C. Bell; June, 1894 (published at the Broadway, New York City).—The Medico-Legal Journal; September, 1894; by C. Bell, Broadway, New York City).—Reminiscences of Dr. J. Marion Sims in Paris; by E. Souchou, M.D.; reprint (Trow Directory Printing Company, New York, 1894).—Brewery Companies; reprint from "The Statist"; by H. S. ("The Statist" Office, Cannon-street, London, E.C., 1895).—Société d'Éditions Scientifiques, Paris: petite Encyclopédie Médicale; Lois de la Création des Sexes; des Moyens de s'assurer une Progéniture Male; par le Dr. A. Cleisz; vol. xxvi., 1895; pp. 163.—L'Hygiène et l'Assistance Publiques; l'Organisation et l'Hygiène Scolaires en Belgique et en Hollande; par le Dr. C. Delcaille; 1895; pp. 234.—Le Traitement de la Diphthérie; par le Dr. de Crésantignes; 1895.—University of Edinburgh Examination Questions in the Practice of Physic, answered and annotated; by W. Rainsay Smith, M.B., C.M., B.Sc. (Young J. Pentland, Edinburgh); price 1s. 6d.—University of Edinburgh Examination Questions in Surgery, answered and annotated by W. R. Smith, M.B., C.M., B.Sc. (Young J. Pentland, Edinburgh); price 1s. 6d.—Origen Poliedrico de les Especies. Arturo Soria y Mata; Establecimiento Tipográfico (sucesores de Rivadeneyra), Madrid, 1894.—Die Diphtherie; von Dr. A. Baginsky (Urban und Schwarzenberg, Wien und Leipzig, 1895).—Clinical Sketches, illustrative of Practical Medicine and Surgery; February, 1895; edited by Noble Smith (published monthly by Smith, Elder, and Co., Waterloo-place, London); price 1s.—The Royal Natural History; vol. iii., part 16 (Frederick Warne and Co., Bedford-street, Strand, London); price 1s. net.—Wilson's Legal Handy Books: Treatise on the Law relating to the Validity of Contracts in Restraint of Trade; by Wm. A. Jolly, Barrister-at-law (Effingham Wilson, Royal Exchange, London); price 1s. net.—Monatsschrift für Geburtshülfe und Gynäkologie; von Professoren Dr. A. Martin und Dr. M. Sänger; February, 1895 (Williams & Norgate, Henrietta-street, Covent-garden, London).

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

ATKINSON, H. N. C., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Warneford Hospital, Leamington.

BANKS, L. P., L.R.C.P. Irel., L.F.P.S. Glasg., has been reappointed Honorary Surgeon to the Mansfield and Mansfield Woodhouse District Hospital.

BODINGTON, G. F., M.D. Durh. and Giessen, M.R.C.P. Lond., F.R.C.S., L.M. Eng., has been appointed Medical Superintendent to the New Westminster Asylum, British Columbia, Canada.

BRIGGS, H., M.B., C.M. Edin., F.R.C.S. Eng., has been reappointed Honorary Surgeon to the Liverpool Hospital for Women.

BURTON, J. E., L.R.C.P. Lond., M.R.C.S., L.F.P.S. Glasg., L.M., has been reappointed Honorary Surgeon to the Liverpool Hospital for Women.

CHADWICK, C. M., M.D. Oxon., M.R.C.P. Lond., M.R.C.S., has been appointed Honorary Physician to the Victoria Home for Invalid Ladies, Leeds.

COCHRANE, ROBT. S., M.B. Dub. Univ., F.R.C.S.I., has been appointed Medical Officer to the Longford Union.

CRESSY, G. I., L.R.C.P., L.M., L.R.C.S. Irel., has been reappointed Honorary Surgeon to the Mansfield and Mansfield Woodhouse District Hospital.

CURRIE, J., M.B., M.S. Edin., has been appointed House Surgeon to the Beckett Hospital and Dispensary, Barnsley.

DAVIES, E. T., M.D., C.M., F.R.C.S. Edin., L.R.C.P. Lond., M.R.C.S., has been reappointed Honorary Surgeon to the Liverpool Hospital for Women.

EDIS, J. B., L.R.C.P., L.M. Edin., M.R.C.S., has been reappointed Honorary Surgeon to the Liverpool Hospital for Women.

GODFREY, G. P., L.R.C.P., L.R.C.S. Edin., has been reappointed Honorary Surgeon to the Mansfield and Mansfield Woodhouse District Hospital.

GRIMSDALE, T. B., M.B. Cantab., M.R.C.S., has been reappointed Honorary Assistant Surgeon to the Liverpool Hospital for Women.

HARPER, W. J., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Sixth Sanitary District of the Barnstaple Union.

HARTLEY, R. N., M.B., B.S. Lond., M.R.C.S., has been appointed Honorary Surgeon to the Victoria Home for Invalid Ladies, Leeds.

JONES, E. L., M.D. Camb., B.S., has been appointed Pathologist to the Addenbrooke's Hospital, Cambridge.

KEAY, JOSEPH H., M.D., C.M. Edin., has been appointed Medical Officer for the Colne Sanitary District of the Burnley Union.

KEITH, MRS. CAROLINE, L.R.C.S., L.R.C.P. Edin., has been appointed Anæsthetist to the Chelsea Hospital for Women, Fulham-road.

LANDER, H. W. G., M.B., C.M. Edin., has been appointed Assistant House Surgeon to the District Hospital, West Bromwich, vice O. H. Isard, resigned.

MACGREGOR, G. S., M.B., C.M. Edin., has been appointed Examining Medical Officer to the Glasgow Convalescent Home.

MACVICKER, C. G., M.B., B.S. Irel., has been appointed Medical Officer for the Eighth Sanitary District of the Newmarket Union.

MILLS-ROBERTS, E. A., M.B., C.M. Edin., has been appointed Surgeon to the Penrhyn Quarry Hospital.

PARKINSON, W. G., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Leeds Hospital for Women and Children.

PERRY, F. W., L.R.C.P., L.R.C.S., L.M. Irel., has been reappointed House Surgeon to the Pendleton Branch Dispensary, Salford Royal Hospital.

ROBINSON, F. G., M.B. Vict., L.R.C.P. Lond., M.R.C.S., has been reappointed District Medical Officer for the Broughton Branch, Salford Royal Hospital.

SMART, DAVID, M.B., C.M. Edin., has been reappointed Honorary Assistant Surgeon to the Liverpool Hospital for Women.

SMITH, H. W., L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Surgeon to the Mansfield and Mansfield Woodhouse District Hospital.

SMITH, W. B., L.R.C.P. Edin., M.R.C.S., has been reappointed District Medical Officer to the Salford Royal Hospital.

SPARKE, G. W., M.R.C.S., L.M., has been appointed Honorary Consulting Surgeon to the Mansfield and Mansfield Woodhouse District Hospital.

STEWART, MALCOLM, L.R.C.P. Edin., L.R.C.S. and L.M. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Parish of Erie and Rendall, Orkney.

STUCK, S. J., M.R.C.S., L.R.C.P., has been appointed Resident Medical Officer to the Chelsea Hospital for Women, Fulham-road.

WORTS, E., L.R.C.P. Lond., M.R.C.S., has been reappointed Surgeon to the Essex and Colchester General Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

GUEST HOSPITAL, Dudley.—Resident Assistant House Surgeon, for six months. Board, lodging, and washing in hospital provided.

HOSPITAL FOR WOMEN (the London School of Gynæcology), Soho-square, W.—Clinical Assistants.

NORTH LONDON CONSUMPTION HOSPITAL, Hampstead, N.W.—Resident Medical Officer for one year. Honorarium £40 per annum, with with board, rooms, &c., in the Hospital. Applications to the Secretary. Offices: 41, Fitzroy-square, London, W.

NORTHUMBERLAND COUNTY LUNATIC ASYLUM, Morpeth.—Assistant Medical Officer, unmarried. Salary £120 per annum, increasing £10 yearly, to £150, with furnished apartments, board, and lodging.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, London, N.W.—Resident Medical Officer for four months. Salary at the rate of £60 per annum, with board and residence.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, Wigan.—Junior House Surgeon. Salary £80 a year, with apartments and rations (wines, spirits, and washing are not included).

ROYAL SURREY COUNTY HOSPITAL, Guildford.—Assistant House Surgeon. Board, residence, and laundry provided.

ROYAL INFIRMARY, HULL.—Senior House Surgeon, unmarried. Salary £100 per annum, with board and furnished apartments.

ST. GEORGE'S AND ST. JAMES'S DISPENSARY, 60, King-street, Golden-square, W.—Resident Medical Officer. Salary £100, with furnished rooms, fuel, light, and attendance.

WORCESTER COUNTY AND CITY LUNATIC ASYLUM.—Third Assistant Medical Officer; unmarried. Salary commences at £100 per annum, with board, lodging, and washing. Applications to Dr. Cooke, The Asylum, Powick, near Worcester.

Births, Marriages, and Deaths.

BIRTHS.

PECK.—On Feb. 12th, at Ormskirk, the wife of Herbert Peck, L.R.C.P., L.R.C.S. Edin., of a daughter.

RAYNER.—On Feb. 19th, at 68, Porchester-terrace, W., the wife of Herbert E. Rayner, F.R.C.S., of a daughter (prematurely).

SELBY.—On Feb. 17th, at South-parade, Doncaster, the wife of E. W. Selby, M.B., B.S. Lond., F.R.C.S. Eng., of a daughter.

MARRIAGES.

DUKE—FITZROY.—On Jan. 26th, at the British Consulate General, Meshed, Persia, Surgeon-Captain A. L. Duke, I.M.S., to Frances Regina, daughter of the late Captain I. M. O. Fitzroy, R.A.

ELGOOD—SCOTT.—On Feb. 18th, at St. Mary's, Chelmsford, Charles Reginald Elgood, M.D., B.S. Lond., of Windsor, to Edith Emma, only daughter of Charles Scott, of Chelmsford.

WALKER—HEYWOOD.—On Jan. 21st, at St. John's Church, Buenos Ayres, Henry Muirhead Walker, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., of La Banda, youngest son of the late Dr. Arthur C. Walker, of Liverpool, to Lilian, youngest daughter of the late James Heywood, of Valparaiso, Chili.

DEATHS.

BLUETT.—On Feb. 18th, at his residence, Chesterfield, John Bluett, M.R.C.S., L.S.A., in his 80th year.

CHAMPNEYS.—On Feb. 11th, suddenly, at Hamilton House, Penge, Henry Montagu Champneys, F.R.C.S. Eng., in his 77th year.

HUBBERT.—On Feb. 16th, Philip Hubbert, M.R.C.S., L.S.A., of Meadow Bank, West Tarring, in his 81st year.

HULKE.—On Feb. 19th, at 10, Old Burlington-street, London, W., John Whitaker Hulke, F.R.S., President of the Royal College of Surgeons of England, aged 64.

TAYLOR.—On Jan. 11th, at Elmina, Gold Coast Colony, Wm. Taylor, M.D., Assistant Colonial Surgeon, late of the Jamaica Medical Service, aged 39.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 21st, 1896.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind	Dry Bulb	Wet Bulb	Solar Radia in Vacuo	Maximum Temp. Shade	Min. Temp.	Rainfall.	Remarks at 8.30 A.M.
Feb. 15	30·27	E.	28	Fzn.	33	33	26	...	Overcast
,, 16	30·39	E.	31	Fzn.	65	36	27	...	Cloudy
,, 17	30·51	S.W.	31	Fzn.	47	36	24	...	Foggy
,, 18	30·35	S.W.	31	Fzn.	46	39	26	...	Foggy
,, 19	30·27	N.E.	34	33	59	41	31	...	Cloudy
,, 20	30·33	N.E.	35	33	50	42	32	...	Overcast
,, 21	30·31	N.E.	38	36	44	41	35	...	Overcast

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (1 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynecological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.).

TUESDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1.30 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Gt. Northern Central (2.30 P.M.).

WEDNESDAY.—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.).

THURSDAY.—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (2 P.M.), Soho-square (2 P.M.), North West London (2 P.M.).

FRIDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.).

SATURDAY.—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY.—MEDICAL SOCIETY OF LONDON.—8.30 P.M. Mr. J. D. Malcolm: Some cases of Liver and Gall Duct Surgery.—Dr. Wallis and Mr. E. Cotterell: A case of Craniectomy (the patient will be shown).

FRIDAY.—WEST KENT MEDICO-CHIRURGICAL SOCIETY (Miller Hospital, Greenwich).—8.15 P.M. Clinical Evening. Card Specimens and Cases by Mr. John Poland, Dr. Herschell, Dr. Tayler, Mr. J. P. Purvis, Dr. Ezard, and Mr. Ernest Clarke.

CLINICAL SOCIETY OF LONDON.—8.30 P.M. Agenda as announced in THE LANCET of Feb. 16th.

ÆSCULAPIAN SOCIETY OF LONDON.—9 P.M. Adjourned discussion on "The Action of Cardiac Tonics." Mr. H. P. Miller: A case of Diphtheria: Antitoxin and Tracheotomy.—Dr. J. W. Hunt: Synopsis of 1000 cases of Midwifery.—Dr. G. Elam: A case of Facial Paralysis (living specimen).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY.—LONDON POST-GRADUATE COURSE.—Royal London Ophthalmic Hospital, Moorfields, 1 P.M., Mr. A. S. Morton: Affections of Eyelids.—London Throat Hospital, Gt. Portland-st., W., 8 P.M., Mr. G. Stoker: Post-nasal Growths and Enlarged Tonsils.

TUESDAY.—LONDON POST-GRADUATE COURSE.—Bethlem Hospital, 2 P.M., Dr. Percy Smith: Puerperal and Lactational Insanity.

ROYAL BRITISH NURSES' ASSOCIATION.—8 P.M. Dr. W. S. Colman: Convulsions and the Training of Weak-minded Children.

WEDNESDAY.—LONDON POST-GRADUATE COURSE.—Royal London Ophthalmic Hospital, Moorfields, 8 P.M., Mr. A. S. Morton: Optic Neuritis.—Hospital for Skin Diseases, Blackfriars, 1 P.M., Dr. Payne: Eczema, its Varieties.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3 P.M. Lecture by Dr. Gowers.

WEST LONDON HOSPITAL (Hammersmith-rd., W.).—5 P.M. Dr. W. Hunter: Pernicious Anæmia. (Post-graduate Lecture.)

HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8.30 P.M. Lecture by Prof. Clifford Allbutt on "Senile Plethora (High Arterial Tension in the Aged)."

THURSDAY.—LONDON POST-GRADUATE COURSE.—Hospital for Sick Children, Gt. Ormond-st., 3.30 P.M., Mr. Donald Gunn: Ophthalmia.—National Hospital for the Paralysed, Bloomsbury, 2 P.M., Dr. Bastian: Cases in the Hospital.—Central London Sick Asylum, Cleveland-st., W., 5.30 P.M., Mr. Bryant: Cases in the Wards.

FRIDAY.—LONDON POST-GRADUATE COURSE.—Bacteriological Laboratory, King's College, 3 to 5 P.M., Prof. Crookshank: Tuberculosis and Leprosy.

THE CANCER HOSPITAL (FREE) (Fulham-road, Brompton, S.W.).—4 P.M. Mr. F. Bowreman Jessett: Cancer of the Uterus.

SATURDAY.—LONDON POST-GRADUATE COURSE.—Bethlem Hospital, 11 A.M., Dr. Hyslop: Developmental Insanity; Circular Insanity.

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICE.

THE INDEX TO THE LANCET.

THE Index for the last half-year was published in our issue of Dec. 29th, which completed the second volume of the year 1894. Those of our subscribers who may wish to be supplied with loose copies can obtain the same (without extra charge) on making application to the Manager.

COUNTY COURTS AND MEDICAL CERTIFICATES.

THE medical profession will accept gratefully any reasonable suggestion from the authorities on the question of medical certificates. We notice one by Mr. Registrar Stone in the County-court, Tunbridge Wells. A defendant excused his non-attendance on a medical certificate. The Registrar demurred on the ground of the vagueness of the certificate—which only stated that the person "must not venture out"—and stated that reasons must be given for the non-attendance. Time was given for the defendant that he might obtain a more definite certificate. There is some reason in this, and medical men will do well to take notice and make their certificates more specific. It is conceivable that there are cases in which too much definition would be inconvenient and unjust; but the medical man must put his ingenuity to the test of meeting reasonable demands and yet not betraying professional confidence.

Mr. R. W. Carshall.—The question is a new one. We do not see that our correspondent need be debarred from conducting the business that he mentions, and therefore from duly advertising it in the medical press. We take it for granted that our correspondent intends to remain aloof from practice; for it would not be right to carry on both vocations.

Asterion has omitted to enclose his name and address.

APPOINTMENT OF PRISON SURGEONS.

To the Editors of THE LANCET.

SIRS,—Can you inform me where to apply for an appointment as colonial surgeon or surgeon to one of Her Majesty's Prisons? Is a married man eligible for either appointment?

I am, Sirs, yours faithfully,

Scarborough, Feb. 19th, 1895. HY. WALKER, M.R.C.S., L.R.C.P.

*** Application for the appointment of prison surgeon should be made to the Prison Commissioners at the Home Office, Whitehall, S.W. (Secretary: Col. M. Clare Garsia), for English appointments, and the candidates are selected on their merits. Medical officers in Scotch and Irish prisons are appointed by the same department, but under separate regulations. The Secretary of State for the Colonies appoints the colonial surgeons and the surgeons and assistant surgeons to the convict prisons abroad. We believe that a married man is eligible for all these appointments; but no doubt the secretaries of the different Government bodies would answer all inquiries.—ED. L.

MEDICAL ADVERTISING IN THE UNITED STATES.

A CORRESPONDENT with British qualifications but long resident in the United States is much concerned at the methods of publicity used by even leading medical men in the States. The proceedings of medical societies are reported in the newspapers. A hysterectomy will be detailed for the gratification of their readers under the head of "A Most Delicate Surgical Operation," at which Dr. So-and-So exceeded himself, and was assisted by Dr. —— of the Hospital &c., &c.; the operation lasted three hours and fifteen minutes. "So important and delicate was the operation that twenty-three doctors, not including those above mentioned, were present." This stroke reminds us of that touch of Addisonian humour in Sir James Paget's narrative of an illness of his own in our columns—that he had had eleven medical attendants, and that his was the only case he knew of recovery where so many had been consulted. The business columns will contain advertisements of Dr. ——'s blood tonics, antiseptic solutions, &c. Another will tell the public that he will henceforth dispense his own medicines and have for sale a number of remedies prepared from favourite prescriptions of his, &c. The said Dr. —— is a member of the local medical societies, and was formerly president of the Medical Society. Our correspondent thinks that these methods, so far from dying out, are on the increase. We regret to hear it. We are not without beams in our own eye; but it would be a new sight in English newspapers to see our medical societies' proceedings reported or hysterectomies described. We cannot doubt that our brethren in the States will come to see that such methods are best left to men without standing and without qualifications.

Nil Desperandum.—It is not usual to charge for death certificates supplied to the registrar, in accordance with the Registration Act.

"DEATHS UNDER ANÆSTHETICS."

To the Editors of THE LANCET.

SIRS,—May I venture to emphasise the comments you made on the death under chloroform which occurred at the Bristol Infirmary, reported in THE LANCET of Feb. 2nd. From personal experience of a considerable number of hospital cases I have come to the conclusion that by suddenly or violently moving a patient incompletely under the influence of an anæsthetic a very marked inhibitory influence to the cardiac centre is initiated. I have repeatedly noticed that immediately after lifting a patient on to or off the operation table, which is frequently done just before or just after total anæsthesia, there has been a marked fall in the pulse tension, with slowing of the respiration, these dangerous symptoms being absent if the patient is fully "under" whilst being moved. I have frequently observed the respiration become extremely shallow and the pulse fluttering during the manipulations necessary to apply a bandage to the abdomen or chest, the administration of the anæsthetic having been stopped some minutes before this was done. I should also like to bear testimony to the value of nitrite of amyl in cases of threatened cardiac failure during chloroform administration. The inhalation of three or four minims of this drug, together with the application of large hot sponges over the cardiac region, has acted as a most valuable circulatory stimulant.

I am, Sirs, yours truly,

J. H. MARSH, M.R.C.S., L.R.C.P. Lond.,

Feb. 4th, 1895. Senior House Surgeon, the Infirmary, Macclesfield.

"SAVE ME FROM MY FRIENDS."

OUR attention has been directed to the following editorial paragraph from the *Glasgow Evening News*:—

> "Dr. John M'Intyre, the well-known Bath-street specialist in throat surgery, was in the middle of an interesting limelight lecture to the Society of Musicians in the Philosophical Society's Hall on Monday night, when he was summoned to Hillhead to perform the operation of tracheotomy on a child *in extremis* from diphtheria. Permission to break off the lecture was cheerfully given by the audience. The doctor bolted, and within an hour was back at his residence, having performed the operation with success, and got the child out of immediate danger."

The paragraph is doubtless the work of some zealous, but very injudicious, friend, and will be deprecated and resented by Dr. M'Intyre not less than by our correspondents and ourselves.

Mr. Alf. Back.—We do not act as assessors on medical treatment or diagnosis, and we do not give medical advice. We recommend our correspondent to consult his medical man as to the suitability of the treatment to which he alludes.

"SUCCUS ALTERANS."

To the Editors of THE LANCET.

SIRS,—I should be thankful if any of your numerous readers could give their experience of a new drug called "succus alterans," an American preparation, I believe, which is recommended in tertiary syphilis, eczema, &c. I am anxious to know if there be any evidence of its efficacy in the later stages of syphilis.

I am, Sirs, yours faithfully,

Feb. 18th, 1895. CYCLOPS.

"WANTED, HISTOLOGICAL SLIDES."

WE have received from numerous correspondents the names and addresses of persons who supply histological slides. We recommend "Member" to apply to the leading opticians. A few surgical instrument manufacturers and a few chemists and druggists also keep histological slides in stock.

"A CASE OF DIPHTHERIA SUCCESSFULLY TREATED BY INSUFFLATIONS AND TABLOIDS OF PURE SULPHITE OF MAGNESIUM."

To the Editors of THE LANCET.

SIRS,—Dr. Brownlow Martin's article under the above heading in your issue of Feb. 9th reminds me of some interesting experiences I have had with this valuable drug since my letter to THE LANCET of Aug. 25th, 1894, on this subject. On Oct. 11th I saw a child suffering from sore-throat, who, the mother informed me, had been the previous week playing with two other children who had been attacked with diphtheria and subsequently succumbed to the disease. On examination I found a small greyish patch on the right tonsil. I prescribed tabloids of sulphite of magnesium, chiefly because the child had possibly been exposed to contagion, and the appearance of the throat, though not at all alarming, was somewhat suspicious. Next day the child was quite well. As the attack was slight and its nature doubtful, I sent no notification to the medical officer of health. On Oct. 16th I was again called to see two other children in the same house—an elder brother and sister of the first patient. There could be no doubt this time. Both children were suffering from diphtheria. The membrane was abundant enough to satisfy the most sceptic diagnostician. Four days after (on the 20th) the mother, who was *enceinte*, contracted the disease in a rather aggravated form. The throat was enormously swollen; the membrane covered the fauces; there were high fever, marked prostration, and albuminuria, as well as symptoms of threatened miscarriage. All these cases were treated with insufflations and tabloids of sulphite of magnesium. All recovered. On the 27th of the same month a boy aged seven, living next door to these patients, had an attack of diphtheria. The disease at first yielded quickly to treatment, but the membrane rapidly reappeared in the pharynx, with hard, dry cough, hoarseness, and dyspnœa, showing that the larynx was attacked. The boy was very obstinate at first, and there was a good deal of difficulty in using the insufflator. He recovered after a hard struggle, and I am quite satisfied that with any other treatment I ever saw tried the result would not have been quite as satisfactory. Let me hasten to say that I have not tried antitoxin. For some time I have decided to do so on the first occasion that the sulphite was unsuccessful. The results I have had from this treatment have been so excellent that the occasion has not yet arisen. Even in the absence of bacteriological evidence there can be no reasonable doubt about the correctness of the diagnosis in these five cases. Besides these, I have, since I wrote to THE LANCET in August last (excluding some more or less doubtful cases) attended three others in which the disease was sufficiently marked to justify one in claiming to be clinically certain. In one of these there was slight albuminuria, as well as the characteristic membrane. In another the diagnosis was strengthened by a second medical opinion. In each of these cases the sulphite was used. The membrane quickly disappeared, and in each instance the attack was mild. If the results from sulphur be as satisfactory as those obtained from the use of sulphite of magnesium I can easily understand the enthusiasm of its advocates in recent issues of THE LANCET. If the treatment suggested by Dr. Brownlow Martin got as extensive a trial as that of M. Roux the death-rate from diphtheria might possibly be still further reduced.

I am, Sirs, yours faithfully,

Guildford, Feb. 10th, 1895. W. G. NIALL.

THE EXPLOITS OF A BONESETTER.

To the Editors of THE LANCET.

SIRS,—I enclose two cuttings from the local press, which may be of interest to you. They recite the glorious achievements of the local bonesetter, who has been sufficiently fortunate to meet with three dislocations of the knee and one of the clavicle out of a total of fifteen cases of injury. You probably have no idea of the extent to which this sort of thing goes on here. We are constantly having it thrust before our eyes in glaring form. My object in writing is to get an expression of opinion from yourselves and also from members of the medical profession upon the following points. 1. What should be our attitude when requested to see a patient who is under the treatment of an unqualified bonesetter—whether to look after every other part of the patient's body except the bones, or simply to sign the club certificate and, if necessary, the death certificate? 2. Can nothing be done to compel these men to qualify? 3. Does it amount to "covering" if a medical man lends his presence, and perhaps his skill, in a case where the chief injury is being wholly treated by an absolutely unqualified man?

I am, Sirs, yours faithfully,

Feb. 5th, 1895. FAIR PLAY.

"QUALIFIED DISPENSERS."

To the Editors of THE LANCET.

SIRS,—By the Apothecaries' Hall qualification is meant the certificate of qualification issued by the Apothecaries' Society to act as an assistant to an apothecary in compounding and dispensing medicines.

I am, Sirs, yours faithfully,

Feb. 18th, 1895. COLLOID.

AMERICAN QUACKERY IN JOHANNESBURG, TRANSVAAL.

ONE of the most prodigious of the American advertisers in Johannesburg is Dr. Johnson—a specialist in all diseases that can be mentioned. The newspaper advertisements include the cure of gonorrhœa with two or three applications. Can the State University Medical College of Colorado, U.S., bring any influence to bear on such a public scandal? Another offender against professional morals is Dr. Strong of Johannesburg, who says his United States diplomas have been examined by the Board of Medical Examiners of the South African Republic, from whom he has received a licence to practise. Has this Board no control over its licensees? It is high time that some such control was shown to exist.

"SULPHUR *v.* ANTITOXIN IN THE TREATMENT OF DIPHTHERIA."

To the Editors of THE LANCET.

SIRS,—Dr. Hamilton, in THE LANCET of Feb. 2nd, replies to a letter of mine of the 26th ult., and states that he has used sulphur dusting for years in diphtheria, and still uses it in conjunction with antitoxin. As he still uses sulphur partially it must be difficult to say how far his good results are due to the one or the other of the remedies used. As long as the profession will persist in treating cases at one and the same time with two or more remedies it is impossible to say how far each individual remedy is responsible for the result obtained. That Dr. Hamilton's case of diphtheria began to improve after injecting antitoxin twenty-four hours previously really proves nothing, for many cases improve after four days' treatment without using either antitoxin or sulphur, or, indeed, any other drug. Sulphur, like every other remedy, must have time to act. The days of miracles have gone by. From my own personal inquiries and from consulting various authors, including Taylor, Fagge, and Lennox Browne, and finding no reference in Neale's Medical Digest, 1882, I have come to the conclusion that a very small proportion of the profession have given sulphur a fair trial. I am carefully watching the results of treatment by antitoxin, and as yet have seen none that are so good as those of others and my own who have given sulphur a fair trial. The bridge sulphur has carried me over so far without a fatality—a coincidence possibly. At the same time I think I should be deserving of a stronger name than "faddist" if I blindly deserted an old and tried friend which is harmless for an untried stranger which may or may not be harmless. I ask Dr. Hamilton to use sulphur both internally and locally in a given number of cases and antitoxin without sulphur in an equal number, and contrast the two results. I am certainly not a faddist, and am open to conviction when results justify that conviction.

I am, Sirs, yours faithfully,

Aberdovey, N. Wales, Feb. 11th, 1895. W. HAWKINS CUTHBERT.

"TREATMENT OT TAPEWORM."

To the Editors of THE LANCET.

SIRS,—Many years ago I was giving a patient a mixture as follows: Hydriodate of potass, gr. xxxvi.; iodine, gr. xii.; water, ℥i.—ten drops three times a day in water. The patient unexpectedly passed a tapeworm eleven yards long, dead, of which there were no previous symptoms. I have since given the same medicine successfully in two or three cases. The last patient came to me about three years since and stated that he had suffered from tapeworm for two years and was constantly passing tapeworm, but it always returned. I gave him the same medicine, and after a short time he passed a mass of tapeworm dead, and there has been no return. Perhaps "A.M.S." will give the result if he tries the same remedy.

I am, Sirs, yours obediently,

Tenterden, Feb. 5th, 1895. JESSE H. NEWINGTON.

"THE EXHIBITION OF HYPNOTISED SUBJECTS."

To the Editors of THE LANCET.

SIRS,—In reference to the case of trance now exhibiting at the Royal Aquarium, Westminster, will you kindly allow me to call the attention of your readers to my papers on the relation of the sympathetic nerve to disorders of sensation and mentation? The first paper was published in THE LANCET of Sept. 26th, 1868, and other papers in the *Medical Times and Gazette* of Oct. 28th, 1871, and Dec. 16th, 1871, and Aug. 31st, 1872. I venture to think that this aspect of the pathology of sentiomentation will throw some light on the subject.

I am, Sirs, yours faithfully,

Lancaster, Feb. 14th, 1895. METCALFE JOHNSON.

During the week marked copies of the following newspapers have been received:—*Birmingham Post, Torquay Times, Kent Herald, Brighton Gazette, Darwen Post, South Austell Star, Hereford Journal, Cambridgeshire Times, Scotsman, Bristol Times, Walsall Advertiser, Sussex Daily News, Truth, Evesham Journal, Le Temps (Paris), North Star, New York Herald, Rochdale Observer, Yorkshire Herald, Glasgow Evening News, Public Opinion, Dublin Evening Telegraph, Wigan Examiner, Manchester Courier, Huddersfield Examiner, Science Siftings, Leeds Mercury, Horncastle News, City Press, Yorkshire Post, Isle of Man Times, Craven Herald, St. Bartholomew's Hospital Journal, Reading Mercury, Surrey Advertiser, Alliance News, North Devon Herald, Cumberland Packet, Waterford Mirror, Spalding Free Press, Huddersfield Chronicle, Helensburgh Times, West Middlesex Advertiser, Lincolnshire Echo, Isle of Wight Mercury, Cornish Telegraph, Lynn News, Devizes Gazette, Keighley News, Tottenham and Stamford Hill Times, &c., &c.*

Communications, Letters &c. have been received from—

A.—Mons. F. Alcan, Paris; Messrs. C. Ash and Sons, Lond.; Messrs. Allen and Hanburys, Lond.; Messrs. Agar Bros., Manchester; A General Practitioner.

B.—Dr. P. Boobbyer, Nottingham; Dr. Bateman, Lingfield; Dr. D. C. Black, Glasgow; Mr. L. A. Bidwell, Lond.; Mr. J. F. Bullar, Southampton; Mr. C. A. G. Browne, Lond.; Mr. W. H. Best, Ilford; Mr. J. A. Bartlett, Lond.; Mrs. E. J. Bellaser, Bath; Miss Baker, Reigate; Messrs. Blackie and Son, Lond.; Messrs. Brady and Martin, Newcastle-on-Tyne; Messrs. Burgoyne, Burbidges and Co., Lond.; Brit. Med. Assoc., Lond., Librarian of; Bilton Co., Lond.; Baynham.

C.—Dr. E. K. Campbell, Lond.; Mr. R. C. Coward, Lond.; Mr. W. F. Clay, Edinburgh; Mr. A. J. H. Crespi, Wimborne; Mr. F. W. Chapman, Chester; Mr. R. A. Caldwell, Southampton; Rev. W. Conway, Connemara; Mr. Clark, Wolverhampton; Messrs. Catton and Puckey, Lond.; Messrs. J. and A. Churchill, Lond.; Messrs. T. and A. Constable, Edinburgh; C. T. W., Lond.

D.—Dr. C. J. Da Cunha, Daman, Portuguese India; Dr. Dale, Nottingham; Mr. F. Davis, Lond.; Mr. J. W. Davies, Ebbw Vale; Mr. H. W. Denneby, Horsham; Dewsbury Gen. Infy., Sec. of.

E.—Mr. E. W. A. Elliott, Lond.; Rev. R. A. Edgell, Leamington; Messrs. Evans, Lescher and Webb, Lond.; Enquirer; Enquiry.

F.—Mr. L. A. Freeth, Woolston.

G.—Dr. J. Gordon, Aberdeen; Dr. Groedel, Bad-Nauheim; Mr. H. R. Greene, Woking; Messrs. C. Gradisky and Co., Salford; Gt. Northern Central Hosp., Lond., Sec. of; *Glasgow Herald* Office 7078; Dr. G., Grimsby.

H.—Sir F. Seymour Haden, Alresford; Mr. A. Haviland, Buxton; Mr. A. H. Hawes, Bristol; Mr. J. J. Harding, Ballincollig; Mr. J. Heywood, Manchester; Mr. W. H. Haley, Lond.; Messrs. J. Halford and Son, Lond.; Messrs. C. J. Hewlett and Son, Lond.; Hosp. for Women, Lond., Sec. of; Hull Roy. Infy., Sec. of; Home for Sick Children, Cheltenham, Hon. Sec. of.

I.—Inquirer, Tewkesbury.

J.—Sir George Johnson, Lond.; Dr. H. M. Jones, Lond.; Mr. M. Johnson, Lancaster; Mr. W. W. Jones, Lond.; J. P. S., Lond.

K.—Mr. C. Kunkler, Bonn; Messrs. Kenyon and Lord, Manchester; Keroula, Lond.

L.—Dr. W. Lowe, North Melbourne; Mr. W. A. Lane, Lond.; Mr. A. Lloyd, Birmingham; Mr. C. B. Lockwood, Lond.; Mr. T. Lancaster, Blackburn; Surg.-Major A. Leahy, Calcutta; Surg.-Lieut.-Col. E. Lawrie, Ramsgate; Messrs. T. H. Lloyd and Co., Leicester; Messrs. Lee and Nightingale, Liverpool; Liquor Carnis Co., Tring; London Hygienic Depot; L. M.

M.—Dr. Murray, Barrasford-on-Tyne; Dr. J. Macfee, Lond.; Dr. D. MacGregor, Jedburgh; Dr. C. E. Matthews, Lond.; Dr. F. H. Marson, Stafford; Dr. J. Mathewson, Belfast; Brig.-Surg.-Lieut.-Col. T. J. McGann, Bangalore; Mr. R. T. Morgan, Clevedon; Messrs. J. Maythorn and Son, Biggleswade; Med. Soc. of Lond., Hon. Secs. of; Maltine Manufg. Co., Lond.; M. E. C., Lond.

N.—Dr. E. Norton, Folkestone; Dr. von Niessen, Weisbaden; Northumberland County Lunatic Asyl., Morpeth, Med. Supt. of; Nil Desperandum.

O.—Dr. H. Oppenheimer, Lond.; Mr. T. H. Openshaw, Lond.; Messrs. Oppenheimer, Son and Co., Lond.

P.—Mr. F. T. Paul, Liverpool; Mr. R. W. Pound, Malvern; Mr. R. F. Poole, Lond.; Mr. R. H. Plummer, Philadelphia; Mrs. Pattle, Lond.; Price's Patent Candle Co., Lond.

R.—Dr. L. Roberts, Liverpool; Mr. C. Ricker, St. Petersburg; Mr. D. B. Reid, Lond.; Mr. W. J. Robinson, Londonderry; Mr. H. D. Robertson, Lond.; Mr. H. D. Roberts, Lond.; Messrs. Richardson and Co., Leicester; Messrs. Reynolds and Branson, Leeds; Roy. Coll. of Surg. in Ireland, Registrar of; Roy. Meteorolog. Soc., Lond., Sec. of.

S.—Dr. J. Selkirk, Litcham; Dr. W. W. Smith, Lond; Mr. Simeon Snell, Sheffield; Mr. W. G. Spencer, Lond.; Mr. G. F. Stone, Bristol; Mr. F. H. Simmons, Hopetown; Mr. J. Smith, Matlock; Rev. S. Sunderland, Brecon; Messrs. Street and Co., Lond.; Messrs. Street Bros. Lond.; Messrs. Stubbs, Lond.; Sanitas Co., Lond.; Sanitary Inst. Lond., Sec. of; Soloid, Lond.; Surgeon, Lond.

T.—Mr. F. Tennant-Pain, Lond.; T. E. H., Winchester.

W.—Dr. F. J. Waldo, Lond.; Mr. C. Wells, Bristol; Mr. J. H. Walters, Reading; Messrs. Williamson and Sons, Lond.; W. Wood and Co., New York; W. H. H.

Y.—Messrs. Young and Co, Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. E. Allen, Hawes; Mr. R. E. Archer, Cardiff; A., Lond.; Antiseptic, Lond.; Alpha, Lond.; A. Z., Lond.

B.—Dr. F. M. Black, Lond.; Dr. J. M. Barbour, Lond.; Mr. D. D. Brown, Burton-on-Trent; Mr. J. Baillie, Foschow; Mr. J. W. Broadbent, Newark; Mr. F. Broadbent, Newark; Mr. J. Bell, Carrickfergus; Mr. H. P. Butterworth, Lond.; Mr. A. M. Baird, Glasgow; Mrs. Budge, Crediton; Messrs. Blondeau et Cie., Lond.; Burnley Victoria Hosp., Sec. of; Bromide, Lond.; Bonus, Lond.; Bow E., Lond.; Biceps, Lond.; B. A., London; B. R., Lond.

C.—Dr. T. Colvin, Glasgow; Mr. F. W. Chapman, Chester; Mr. J. N. Cregeen, Liverpool; Miss J. Chalcraft, Liphook; Messrs. Cavendish, Edenborough and Co., Lond.; Messrs. Cassell and Co., Lond.; Cappice, The, Notts, Med. Supt. of; Chevron, Lond.

D.—Mr. W. Dannè, Almondsbury; D. E. W., Lond.

E.—E. J., Lond.; E. S., Bradford; E. M. W., Lond.

F.—Dr. R. S. Ferguson, Chertsey; Dr. R. W. Fell, Waterhouses; Dr. Fergusson, Great Malvern; Dr. W. R. Fenton, Liverpool; Mr. N. H. Forbes, Tunbridge Wells; F., Lond.; Felix, Lond.; Forceps, Lond.

G.—Mr. T. H. Gillam, Bromyarn; Mr. S. A. E. Griffith, Lond.; Graduate, Lond.; Genuine, Lond.

H.—Dr. E. R. Holmes, Shifnal; Dr. W. Hector, Shaftesbury; Dr. J. Holmes, Whitefield; Mr. J. H. Haywood, Nottingham; Mr. J. G. Howe, West Brighton; Mr. H. Hutchinson, Eccleshall; Mr. A. O. Honnywill, Bletchley; Messrs. J. Haddon and Co., Lond.; Holloway Sanatorium, Virginia Water, Clerk of; Hailstone, Lond.; Helmet, Lond.; H. G. P., Lond.; H. C., Lond.; Dr. H., Lond.

J.—Mr. G. H. S. Johnston, St. John, N.B., Canada; Jessop Hosp. for Women, Sheffield, Sec. of; Justitia, Lond.; J. N., Lond.

L.—Mr. A. Latham, Shillingstone; Mr. J. W. Lewis, Brynamman; Mr. S. R. Lane, Woodborough; Messrs. T. H. Lloyd and Co., Leicester; Lester, Lond.; Lapis, Lond.; Lamos, Lond.; Lex, Lond.

M.—Dr. C. D. Musgrove, Penarth; Mr. J. McKeague, Lond.; Mr. J. B. Monks, Great Harwood; Munich Lion Brewery Co., Lond., Manager of; Medicus, Ashton-under-Lyne; M.D., Lond.; Mars, Lond.; M., Farnham; Medical, Todmorden; Mot, Lond.; M. R., M.D., Edinburgh; Marto, Lond.

O.—Dr. O'Callaghan, Tenterden.

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